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YUKON MINING SETTLEMENT: AN EXAMINATION OF THREE COMMUNITIES

by

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled YUKON MINING SETTLEMENT: AN EXAMINATION OF THREE COMMUNITIES submitted by William Ganfield Laatsch in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

ABSTRACT

The settlement pattern in the Yukon Territory has evolved primarily in response to mining and associated activities, particularly transportation. Since the gold rush, there has been only limited growth in the mining industry until the late 1960s when two large new mines were developed. To accommodate the miners and their families, two new communities were constructed: Clinton Creek and Faro. These, together with the older community of Elsa, constitute the only settlements in the Yukon Territory exclusively affiliated with large-scale mining operations at present.

The communities thus created by the mining companies are distinctly different from one another. In providing for satisfactory community life within them, several factors were considered to be important by the residents. The site of the settlement should be developed with an awareness of its existing physical and historical attributes. The community should be planned to provide easy accessibility to shopping, school, and recreation facilities. It is desirable that housing should be single-family dwellings on large lots and arranged to insure privacy. The opportunity should exist for political, social, and economic fulfilment within the context of a small community.

Attempts should be made to minimize the feeling of isolation by providing amenities, effective communication, and reliable transportation.

Mining has been responsible for new settlement features on the map of the Yukon, but in the main the communities involved continue to be occupied by a succession of transients. It is hoped that this study will be useful for planning future communities which will accompany continued mineral exploitation and transportation growth.

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CHAPTER I

THE PROBLEM

> Modern history began
> with the great mining strikes
> of the New World.
>
> Carl O. Sauer

A map portraying existing settlements of North America reveals a distinct thinning in the density of settlements and their transportation network in the higher latitudes. The Yukon Territory, albeit thinly settled, shows evidences of a population density that is not found at similar latitudes in North America. It is the purpose of this study to investigate the characteristics and problems of selected settlements created by the mining industry in the Yukon Territory.

There are basically two ways of studying mining settlements. Kohn suggests studying "the facilities men build in the process of occupying an area."[1] Numerous studies of this nature have focused on the rural agricultural landscape and have assisted in understanding

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[1] C. Kohn, "Settlement Geography," in P. James and C. Jones (eds.), American Geography: Inventory and Prospect (Syracuse: Syracuse University Press, 1954), p. 125.

its cultural features and the processes which brought it into existence. In addition, it seems appropriate to carry such a study further and do as Bowman suggested

> to determine the settler's thinking. What led him to migrate into an experimental fringe, new or old? His impulsions and thoughts may be irrational, emotional, romantic, hard-headed, stupid, intelligent, or courageous. His conclusions may be denied by events and his reasoning frustrated by time. Yet, he is a cell in the frontier organism, and it is important to know how he functions and why, as he sees the matter.[2]

In a similar vein Stone has viewed man's advancement into the pioneer fringe, particularly as he has moved farther poleward in North America and Norden. He has encouraged research on "the kinds of permanent and temporary residences, the shapes of the villages and the size and location of the area upon which each settlement depends."[3] Regarding permanence, Stone also wonders what is significant:

> different ways of making a living, number of stores, acreage of cleared land, construction of public utilities, residential building materials, incorporation of settlements, and attitudes of people?[4]

Stone questions the notion that any exploitation is only temporary, thus giving rise to settlement impermanence. He points out that abandoned agricultural areas are testimony to the impermanence of agricultural

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[2] I. Bowman, "Settlement by the Modern Pioneer," in G. Taylor (ed.), Geography in the Twentieth Century (New York: Philosophical Library, 1953), p. 262.

[3] K. Stone, "Human Geographic Research in the North American Northern Lands," Arctic, Vol. 7, No. 34, (1954), p. 329.

[4] Ibid., p. 330.

settlement and, on the other hand, that mining settlements traditionally pictured as boom and bust communities, still exist long after the ore has been mined.[5]

Compared to agricultural settlement, mining as an agent for colonization and the mining settlements themselves have seldom been studied. This is not because they lack a singular nature. Wonders has indicated that "our northern mines have given rise to a distinctive settlement type."[6]

Fried has identified two types of mining settlements in the Northwest Territories; the isolated company mining camp and the mining town that develops when the mineral production is constant over a long period of time.[7]

Alexander has made a plea for more information about mining settlements. He asks,

> What are the characteristics of mining towns that distinguish them from other types of settlements? Do mining communities differ among themselves to distinguish coal towns from iron ore towns, or are they essentially the same regardless of the mined mineral?[8]

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[5] Ibid., p. 323.

[6] W. C. Wonders, "The Forest Frontier and Subarctic," in J. Warkentin (ed.), Canada: A Geographical Interpretation (Toronto: Methuen, 1967), p. 497.

[7] J. Fried, "Settlement Types and Community Organization in Northern Canada," Arctic, Vol. 16, No. 2, (June 1963), p. 98.

[8] J. Alexander, Economic Geography (Englewood Cliffs: Prentice-Hall, 1963), p. 281.

This dearth of knowledge about mining settlements is particularly regrettable when it is suggested by experts that mining will provide the basis for northern development. R. G. Robertson, former Deputy Minister of Northern Affairs and National Resources, has stated, "Whatever economic importance Canada north of the provinces may have in the future will come from minerals."[9] Similarly, Buck and Henderson wrote that the "development and colonization of the Canadian North will depend in the future, as in the past, mainly on the development of its non-renewable resources of metals and mineral fuels."[10]

It is the purpose of this thesis to try to answer some of the questions posed by Bowman, Stone and Alexander, particularly in light of anticipated development of additional mineral resources in the North. The hypothesis of this study is: mining is an effective agent for northern colonization and the related communities, if effectively designed, can provide a satisfactory environment for northern residents.

Previous research includes material directly related to the

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[9] R. G. Robertson, "The Coming Crisis in the North," Journal of Canadian Studies, Vol. 2, No. 1, (Feb. 1967), p. 4.

[10] W. K. Buck and J. F. Henderson, "The Role of Mineral Resources in the Development and Colonization of Northern Canada," in V. W. Bladen (ed.), Canadian Population and Northern Colonization (Toronto: University of Toronto Press, 1962), p. 73.

topic. The works of Robinson[11] and Parker[12] are especially valuable as they relate specifically to the Canadian scene. Ridge[13] provides a framework for the planning of settlements. Two publications of the Mid-Canada Development Foundation[14] illustrate how one sector of society views northern development and accompanying settlement, while the works of Lucas,[15] Allen,[16] and Porteous[17] provide an understanding of the social, historical, and economic ramifications of the company town.

The Yukon Territory was chosen for the testing of this hypothesis. It was felt that the mining tradition in the Territory, the

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[11] Ira M. Robinson, New Industrial Town on Canada's Resource Frontier, University of Chicago, Department of Geography, Research Paper 73, (1962), 190 pp.

[12] V. J. Parker, The Planned Non-Permanent Community, Northern Co-ordination and Research Centre, Department of Northern Affairs and National Resources, Ottawa, (June 1963), 106 pp.

[13] F. G. Ridge, "General Principles for Planning Sub-Arctic Communities." Unpublished Ph.D. thesis, McGill University, (1953), 568 pp.

[14] Mid-Canada Development Foundation, Inc., Essays on Mid-Canada (Toronto: Mid-Canada Development Foundation, Inc., 1970), 484 pp.

Mid-Canada Development Foundation, Inc., Mid-Canada Conference Task Force Reports (Toronto: Mid-Canada Development Foundation, Inc., 1971). (Not paginated).

[15] Rex A. Lucas, Minetown, Milltown, Railtown (Toronto: University of Toronto Press, 1971), 433 pp.

[16] James B. Allen, The Company Town in the American West (Norman: University of Oklahoma Press, 1966), 205 pp.

[17] J. D. Porteous, "The Nature of the Company Town," Institute of British Geographers Transactions, No. 51 (Nov. 1970), pp. 127-142.

substantial pace of development of the 1960s, and the potential for mining provided attractive elements on which to base a study.[18] Initially in 1970, it was hoped that five mining communities could be analyzed. However, the number was later reduced to three. One of the mines, Venus, a gold and silver mine near Carcross, closed after only nine months of operation and its employees dispersed. Another operation, the Wellgreen copper and nickel mine at Quill Creek, did not come into production when expected. The three mining communities remaining, Elsa, Clinton Creek, and Faro, constitute the only settlements in the Yukon Territory exclusively affiliated with large-scale mining, at present, and reflect three different approaches to settling in the North. Elsa is essentially an old, unplanned, and relatively unattractive community. Clinton Creek appears to be a southern style town transplanted to the North with little to distinguish it but the piles which support the buildings. Faro, the third settlement, has been heralded as a community that has been planned with its buildings designed for living in a northern environment. The mining at Elsa and vicinity is characterized by shafts or adits, whereas the operations at Clinton Creek and Faro are open pit.

The communities were visited on two occasions; once in the summer of 1970 and again in late 1971. It was during the second visit

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[18] G. S. Barry and A. J. Freyman, Mineral Endowment of the Canadian Northwest, Mineral Information Bulletin MR 105, Mineral Resources Branch, Department of Energy, Mines and Resources, (Ottawa: 1970), pp. 57-95.

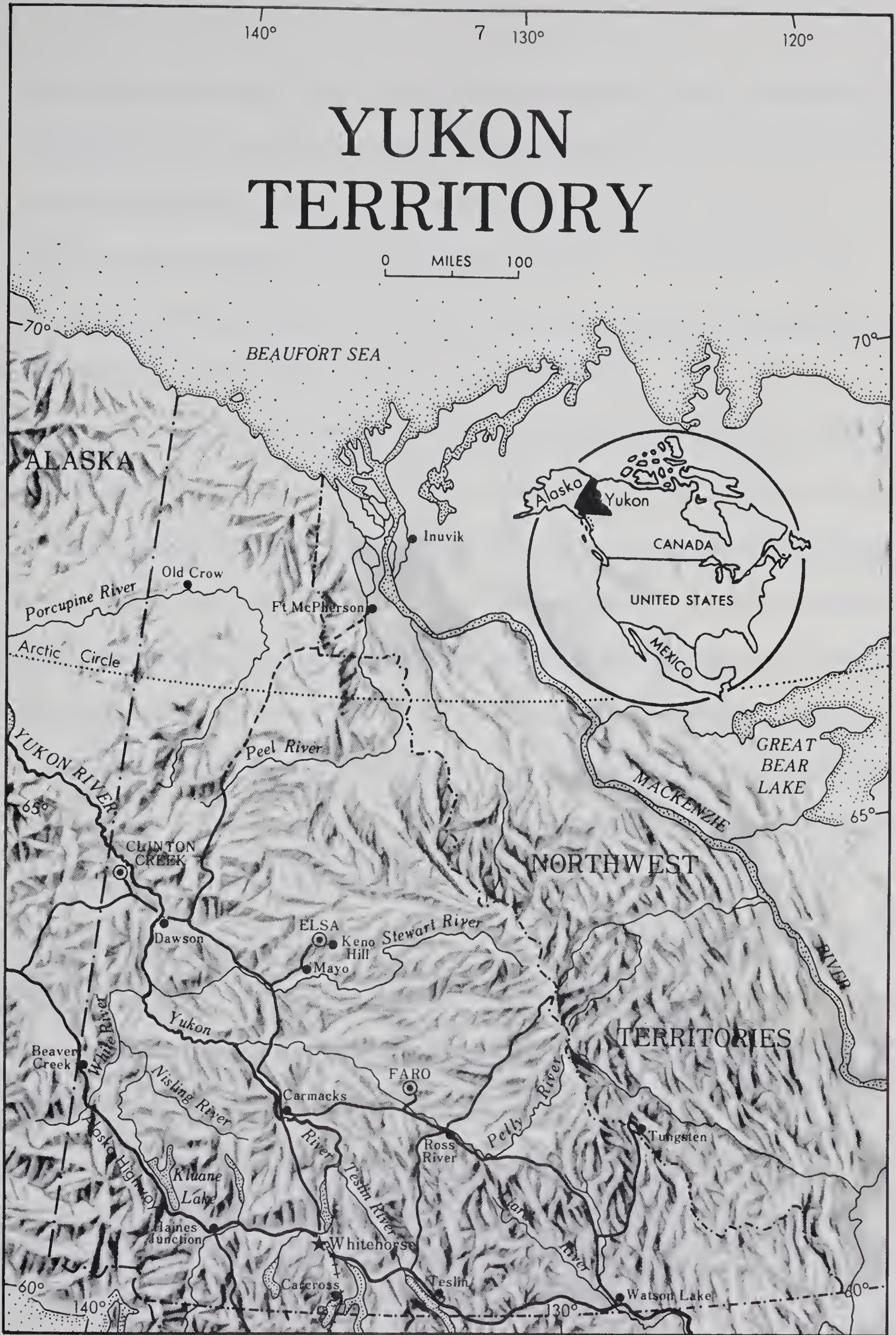
140°
130°
120°
YUKON
TERRITORY
0 MILES 100
70°
BEAUFORT SEA
70°
ALASKA
Alaska
Yukon
CANADA
UNITED STATES
MEXICO
Inuvik
Old Crow
Porcupine River
Ft McPherson
Arctic Circle
Peel River
YUKON RIVER
65°
GREAT
BEAR
LAKE
MACKENZIE
65°
CLINTON
CREEK
NORTHWEST
Dawson
ELSA
Keno
Hill
Stewart River
Mayo
RIVER
Yukon
TERRITORIES
Beaver
Creek
White River
Nisling River
FARO
Carmacks
Pelly River
River
Ross
River
Tungsten
Teslin River
Kluane
Lake
Alaska Highway
Haines
Junction
Whitehorse
Carcross
Teslin
Watson Lake
60°
140°
130°
60°

Figure 1.

that formal interviews were held and questionnaires were distributed. In addition, the management level "decision makers" were interviewed in the communities. Those executives at the corporate offices in Toronto and Vancouver were contacted by mail. Representatives of the Territorial and Federal Governments were contacted in person in Whitehorse and Edmonton, and by mail in Ottawa.

The questionnaire (Appendix A) was distributed to 110 out of 356 households that were available during the period of field research. It was originally planned to interview formally an appropriate percentage of the single male residents living in bunkhouses. However, because of their disinterest, this plan failed and subsequently information could be obtained best in a more informal situation (cafeteria, curling club, bunkhouse). It is not felt that this failure invalidated the research since it is the family which provides the foundation on which to base settlements. The data collected in the field was not limited to formal interviews. During the visits in 1970 and 1971, numerous informal interviews were held. The information and impressions gained during these encounters have been included. Virtually the entire populations at Elsa and Clinton Creek were contacted, as well as a significant number at Faro.

Basic to this study is the recognition that the Yukon is poleward of continuously settled land. Secondly, the region has physical and

cultural elements that are typically northern.[19] These characteristics of sparse settlement and "northerness" help to impart a frontier quality to the region. The settlements studied are single enterprise communities based on mining. Elsa and Clinton Creek are company towns. (For the purpose of this study, a company town refers to a community that is owned and controlled by the company.) The study of settlement involves the investigation of both the process of occupying the land and the forms that result from that occupation. Finally, it must be emphasized that mining settlements, by their very nature, must be located close to ore bodies.

To provide perspective, Chapter II deals with the Yukon and its physical and human elements. Chapter III places the role of mining generally in the economy of the Yukon. The next three chapters deal specifically with the settlements of Elsa, Clinton Creek, and Faro. Some of the common threads which are woven through these latter chapters are drawn together in Chapter VII and discussed along with the role of government and industry. In the final chapter, conclusions are drawn and some recommendations made which it is hoped may prove helpful in planning future mining communities in the North.

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[19] While it would be desirable, not all aspects of the northern environment can be studied, even as they might relate to settlement. In this regard the significance of the indigenous people is acknowledged but not fully discussed.

CHAPTER II

THE STUDY AREA

> No! There's the land. (Have you seen it?)
> It's the cussedest land that I know,
> From the big, dizzy mountains that screen
> To the deep, deathlike valleys below.
> Some say God was tired when He made it;
> Some say it's a fine land to shun;
> Maybe; but there's some as would trade it
> For no land on earth -- and I'm one.
>
> Robert Service

Topography

Topographically, most of the Yukon can be characterized as a complexity of mountains, valleys, and plateau lands representative of the Cordillera region of which it is a part.[1] Regions in the Yukon which lie outside the Cordillera are the Arctic Coastal Plain, Peel Plain, and

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[1] H. S. Bostock, "Physiographic Subdivisions of Canada," in R. J. W. Douglas (ed.), Geology and Economic Minerals of Canada. Economic Geology Report No. 1, Department of Energy, Mines and Resources, Ottawa, (1970), pp. 9-30.

H. S. Bostock, Physiography of the Canadian Cordillera, with Special Reference to the Area North of the Fifty-Fifth Parallel. Geol. Survey, Memoir 247, Department of Energy, Mines and Resources, Ottawa: 1948), 106 pp.

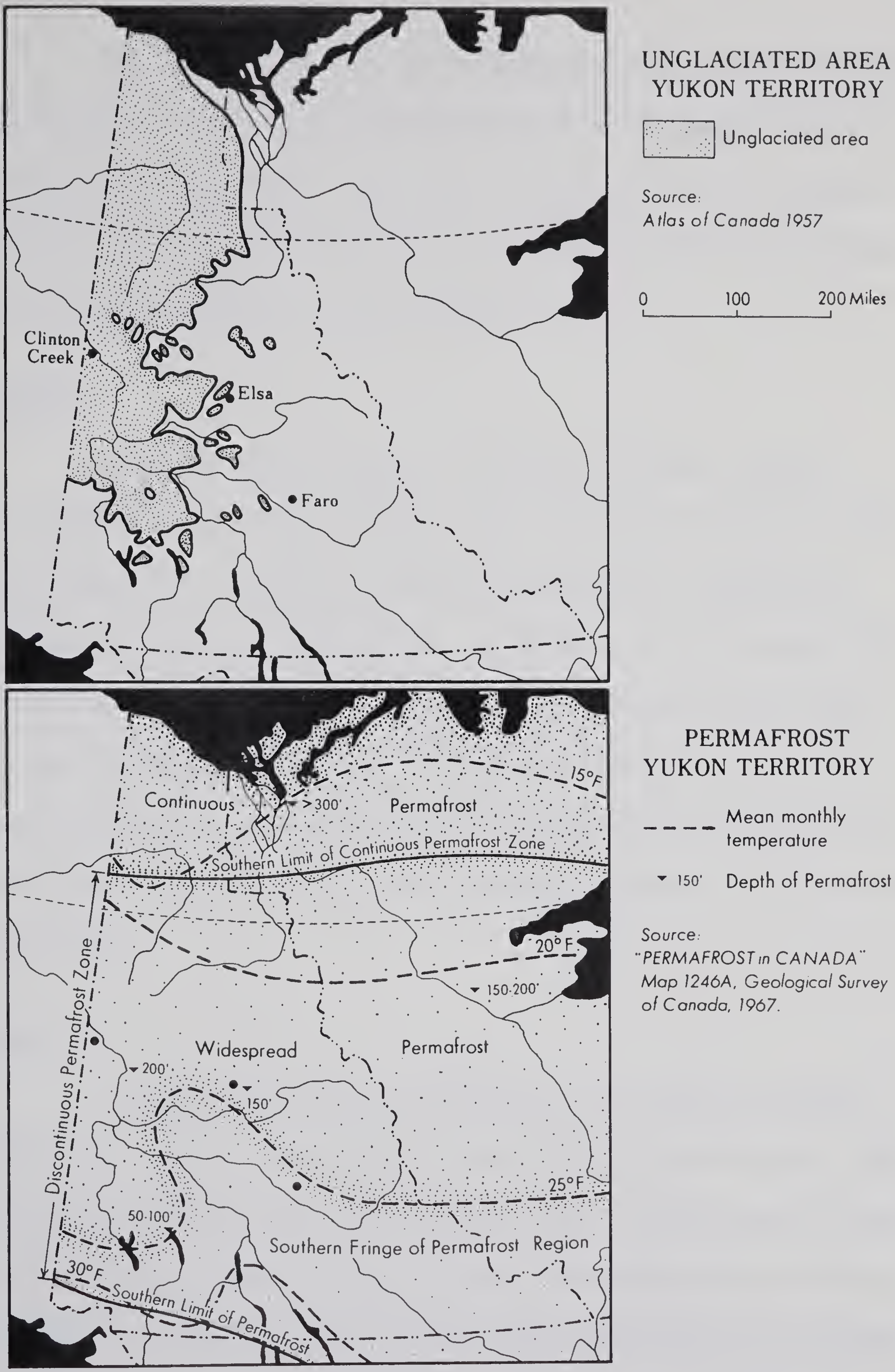
Source: After Bostock, 1970.

Figure 2.

the Peel Plateau (Figure 2). The Cordillera is separated into the Porcupine and Mackenzie Mountains, Brooks Range, Northern Plateau, Central Plateau and Mountains, Coast Mountains, and Outer Ranges. These regions are generally grouped around the larger interior Yukon Plateau.

Occidental settlement has, in the main, located on the Yukon Plateau avoiding the higher, more rugged terrain. The Plateau is basin-like, rising at the edges where it joins surrounding mountain ranges. The surface of the Plateau itself is dissected by rivers incised as much as two thousand feet, and contains the Pelly Mountains. The elevation of the Plateau is four thousand feet in its central parts and is bordered by the Ogilvies at seven thousand feet, the Selwyns at seven thousand to nine thousand feet, and on the west by the magnificent St. Elias Mountains with many peaks above ten thousand feet. Two fault-controlled parallel trenches trending northwesterly are located in the Yukon Plateau -- the Tintina and Shakwak Trenches -- which are impressive in their straight and narrow lineation.

Much of the northwestern part of the Yukon has been unglaciated (Figure 3). The terrain exhibits the absence of glaciation with accordant stream valleys with V-shaped walls flaring upward to the broad, rounded ridges of the upland. Lakes are unusual features in the unglaciated region. Where glaciation occurred, the typical alpine and continental features of an erosional or depositional nature are common.



Source:
Atlas of Canada 1957

Source:
"PERMAFROST in CANADA" Map 1246A, Geological Survey of Canada, 1967.

Figure 3.

The higher mountains are striking with their cirques, arêtes, and horn peaks. The valleys are characteristically U-shaped and have been widened and deepened. The slopes and valley floors are mantled with glacial debris, some formed into conspicuous moraines and eskers. Lakes are more common to glaciated areas.

Drainage

The Yukon River system, including the Pelly, Stewart, White, and Porcupine Rivers, drains most of the Yukon Territory to the Pacific (Figure 2). Exceptions include the Liard River draining the southeastern corner of the Territory. In addition, the east slope of the Wernecke Mountains and the Peel Plateau drain eastward by the Peel River into the Mackenzie system. Flowing directly into the Beaufort Sea are the streams of the north slope of the British Mountains and the Coastal Plain, while the Alsek, in the extreme southwest, drains directly to the Pacific.

Climate

Perhaps the greatest contributor to the Yukon's "northerliness" is the climate. The summers are short but usually warm, while the winters are long and cold. The annual range of temperature is great and precipitation is slight. These typically continental characteristics result from the blocking effect of the St. Elias Mountains and the inland

situation of the Central Yukon.[2] A more detailed description of the climatic regimes of stations in the Yukon and a comparison with other stations is found in Appendix B. It must be remembered that the data from the climatic stations in the Yukon are of relatively short periods and that the recording stations are located in communities which, due to their sites, are not necessarily representative of the vast area of the Yukon.

The complex topography results in substantial variations in local climates. Elsa, Clinton Creek, and Faro are located on slopes which are coincident with thermal belts. By locating on the slopes, the sites avoid the cold air which accumulates in the valleys as a result of cold air drainage. In addition, the communities are not located so high on the slopes to encounter the cold which exists at higher elevations.

Daylight Variations

A striking environmental factor is the variation in daylight experienced in the northerly latitudes. Everywhere in the settled portion of the Yukon twenty-four hours of light (though not of sunshine) may be experienced in the summer months. At the time of the winter solstice, the converse is true and long hours of darkness prevail. The latitude on which Whitehorse is located only receives four hours of sunshine. In

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[2] For a substantial description and analysis of the climate of the Yukon, see W. G. Kendrew and D. Kerr, The Climate of British Columbia and the Yukon (Ottawa: Queen's Printer, 1955), 222 pp.

actual fact, Whitehorse receives considerably less because of its location in a valley.

Permafrost

The existence of permafrost, even though seldom observed, is an important element in the physical environment.[3] Permafrost, or perenially frozen ground, does not exist uniformly throughout the Yukon (Figure 3). Generally, the area north of the 67th parallel is underlain by continuous permafrost. South of this, the permafrost is discontinuous in extent, generally occupying north-facing slopes and valley floors.[4]

Frozen soil, if left undisturbed, is an excellent foundation for a structure. However, if the permafrost is thawed and the earth material loses its structure and bearing capacity, damage may result to the buildings or foundations. Such damage is particularly likely to occur if the permafrost has a high ice content which, when thawed, will turn to a slurry giving little or no support. Permafrost is found in all the communities studied.

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[3] R. J. E. Brown, Permafrost in Canada: Its Influence on Northern Development (Toronto: University of Toronto Press, 1970), 234 pp.

[4] R. J. E. Brown, "Permafrost in Canada," map published by Div. of Bldg. and Res., Nat. Res. Council (NRC 9769) and Geol. Survey of Canada. (Map 1246a), Aug. 1967.

Vegetation

The northern character of the Yukon is also exhibited by its forests which are the western extent of the Boreal forest in Canada. The forest cover varies in species and density as the trees adapt to the variables of climate, aspect, exposure, permafrost, and elevation.[5] In the west central Yukon, Dawson area, the forests chiefly mantle the valley slopes. White spruce (Picea glauca) is common, as well as groves of Alaska white birch (Betula papyrifera var. humilis) and aspen (Populus tremuloides). The deciduous species favor the dry hilltops and the south-facing slopes, and spruce occupy the lower slopes above the cooler valley floors.

The central Yukon, including the Whitehorse area, has its best forests on the protected lowlands with growth diminishing as elevation increases. White spruce, Alpine fir (Abies lasiocarpa), and aspen are the common species.

Growth conditions become more marginal in the eastern Yukon, it being higher, colder, and with a higher incidence of permafrost. Consequently the generally warmer south and west slopes are favorable to white spruce, aspen, and birches (Betula papyrifera, B. Kenaica). Opposing slopes may be bare and large stretches of barrens

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[5] J. S. Rowe, Forest Regions of Canada, Bulletin 123. Forestry Branch, Dept. of Northern Affairs and Nat. Resources, Ottawa, (1959), pp. 23-35.

may be encountered. This area merges into the generally treeless Ogilvie and Selwyn Mountains.

In the rain shadow of the St. Elias Mountains, the forest takes on a park-like appearance. The best forests are along the river valleys and consist of white spruce and the poplars.

The most favorable growing area in the Yukon is in the southeast where the forest consists of lodgepole pine (*Pinus contorta* var. *latifolia*), white spruce, and aspen. This area is drained by the Liard River.

North of the Mackenzie Mountains the vegetation is transitional from alpine tundra to park-like stands of stunted white spruce to tundra.

Mineralization

Ore bodies are not necessarily a visible element of the landscape. Nevertheless, their existence may result in a cultural expression. For this reason it would be rewarding if the mineral potentialities of the Yukon were known and could be described. Much of the Cordillera is highly mineralized.[6] Large deposits are known to exist and the possibility

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[6] L. H. Green, "Mineral Potential of Yukon," in *Proceedings of the Second Yukon Northern Resource Conference* (Whitehorse, Y.T., Mar. 23, 24, 25, 1966). Sponsored by the Whitehorse Chamber of Commerce and Yukon Chamber of Mines, p. 174.

Aaro Aho, "Mineral Resources Outlook for Yukon." A paper presented at the Fourth Yukon Northern Resource Conference (Whitehorse, Y.T., April 5, 6, 7, 1972), p. 31.

of finding additional quantities seems assured. However, except for lead and zinc found in conjunction with the Tintina Trench Fault Zone, and asbestos, the Yukon does not appear to have a greater endowment of minerals than the more accessible and milder British Columbia portion of the Cordillera.[7]

Settlement

The initial form and pattern of occidental settlement of the Yukon was related to the trapping and trading of fur-bearing animals. More permanent communities were trading posts usually situated at the junction of the larger rivers with smaller, more transitory settlements located on the surrounding tributaries.

In the 1870s and 1880s the country received a constant trickle of gold miners. While fur trapping and gold mining are incompatible economic activities, the form and pattern of settlement changed only slightly during this time. The Klondike gold rush, described as "the most important single event in the history of the Canadian North," changed the form and density of settlement while the pattern retained its coincidences with the larger rivers.[8] Whitehorse, at the head of

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[7] G. S. Barry and A. J. Freyman, Mineral Endowment of the Canadian Northwest. Mineral Information Bulletin MR 105, Min. Res. Branch, Dept. of Energy, Mines and Resources, Ottawa (1970), p. 74.

[8] Morris Zaslow, The Opening of the Canadian North 1870-1914 (Toronto: McClelland and Stewart, 1971), p. 101.

navigation of the Yukon River system, boomed into existence in 1897 as a break-of-bulk point. The White Pass and Yukon Route Railway was completed from tidewater at Skagway to Whitehorse in 1900. Thus Whitehorse became the distribution center for the Yukon.

Dawson was situated on the ill-drained banks of the Yukon River where it is joined by the Klondike. While dozens of smaller communities were springing into existence, others were becoming depopulated almost as rapidly as men sought their fortunes along the more promising streams.

After the rush at the turn of the century, the pattern of settlement remained essentially unchanged for forty years. The settlements were water-oriented as the rivers, especially the Yukon, Stewart, and Pelly were the highways of the Territory. In summer large river boats carried the traffic between the railhead at Whitehorse and the river settlements. In the winter months when the ice was safe, many sections of the rivers were utilized by dog teams and horse-drawn sleighs carrying travellers and such freight as was considered essential: food, mail, and whiskey.

When road construction was begun in the forties, the Yukoner slowly began to turn his back to the rivers. The Alaska Highway, built in conjunction with the airfields of the Northwest Staging Route, and the war effort opened up the Yukon to highway traffic. If the river settlements had not already been abandoned, the building of a highway nearby

usually drew the population inland to face the road. Some communities, because of their importance or siting, were accessible both by water and road. Ross River, the head of navigation on the Pelly River, was also the natural ferry point of the Canol Road. Mayo, often called Mayo Landing, on the Stewart River was united by road with Whitehorse in 1951. In 1955 the Mayo-Whitehorse road was extended from Stewart Crossing to Dawson. Prior to this link, Dawson could be reached via the Boundary Road which gave summer access through Alaska from the Alaska Highway in 1951. The creation of a highway linkage to settlements immediately resulted in the collapse of the river steamer industry.

In the last decade, Yukon mining has been characterized by the working of large deposits of industrial ores. The exploitation of the basic ores has come about through the application of more sophisticated techniques of exploration, mining, milling, and transport.

The settlement characteristics evolving with the working of new large ore bodies have little or no resemblance to the form or pattern of settlement that existed prior to the industrial economy of the Yukon. It might be concluded then that the settlement pattern has evolved from river-oriented fur economy and, later, an industrial economy to a highway transport-oriented industrial economy.

Similarities to the evolving settlement pattern are seen in the patterns of social organization in the entire Canadian North. Zaslow sees

> two distinct patterns of social organization--a diffused, primitive, individualistic pattern based on wildlife resources which was characteristic of the early stages of development; or the pattern of the new industries, which were mainly organized on specialized, hierarchical lines and gave rise to urban communities and wage earning labour forces.[9]

Government

The organization and activity of government in the Territory has waxed and waned, usually in response to the mining activity. Government was established in the Yukon Territory in 1898 in response to the gold rush. The Yukon Act is the basic legislation providing for the government of the Territory. It provides for a Commissioner to administer the government of the Territory under instruction from time to time by the Governor-in-Council or the Minister of Indian Affairs and Northern Development.[10]

In the past decade, the administration of the Territorial Government has become more representative of the people through an elected Territorial Council. The responsibilities of the Territorial Government have increased as some functions have been relinquished by the Federal Government.

The presence of the government appears almost overwhelming.

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[9] Ibid., p. 281.

[10] The growth of government in the Yukon Territories is documented in David R. Morrison, The Politics of the Yukon Territory, 1898-1909 (Toronto: University of Toronto Press, 1968), 136 pp.

The Federal Building in Whitehorse dominates Main Street just as the Commissioner's residence must have been the focal point on Dawson's Front Street when Dawson was the Territorial capital. The magnitude of the government's presence is also seen in the labor force. It is estimated that in 1966 approximately 30 per cent of the Yukon labor force was government employees, either federal or territorial.[11]

Population

The population of the Yukon has never again reached the numbers that were attained during the days of the gold rush, except temporarily during the construction of the Alaska Highway (Figure 4).[12] The ratio of males to females and the age structure of the population are typical of remote mining regions. There have always been more males than females. The proportion has dropped considerably, however, from the 5:1 ratio of 1901 to a more equitable 1.2:1 in 1970.[13] The age structure of the population of the Yukon is dissimilar when compared to the population of Canada (Figure 5). The Yukon has comparatively more people in the zero to nine years and twenty to thirty-nine

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[11] Yukon Territory Statistical Appendix to the Annual Report of the Commissioner (1970-1971), p. 24.

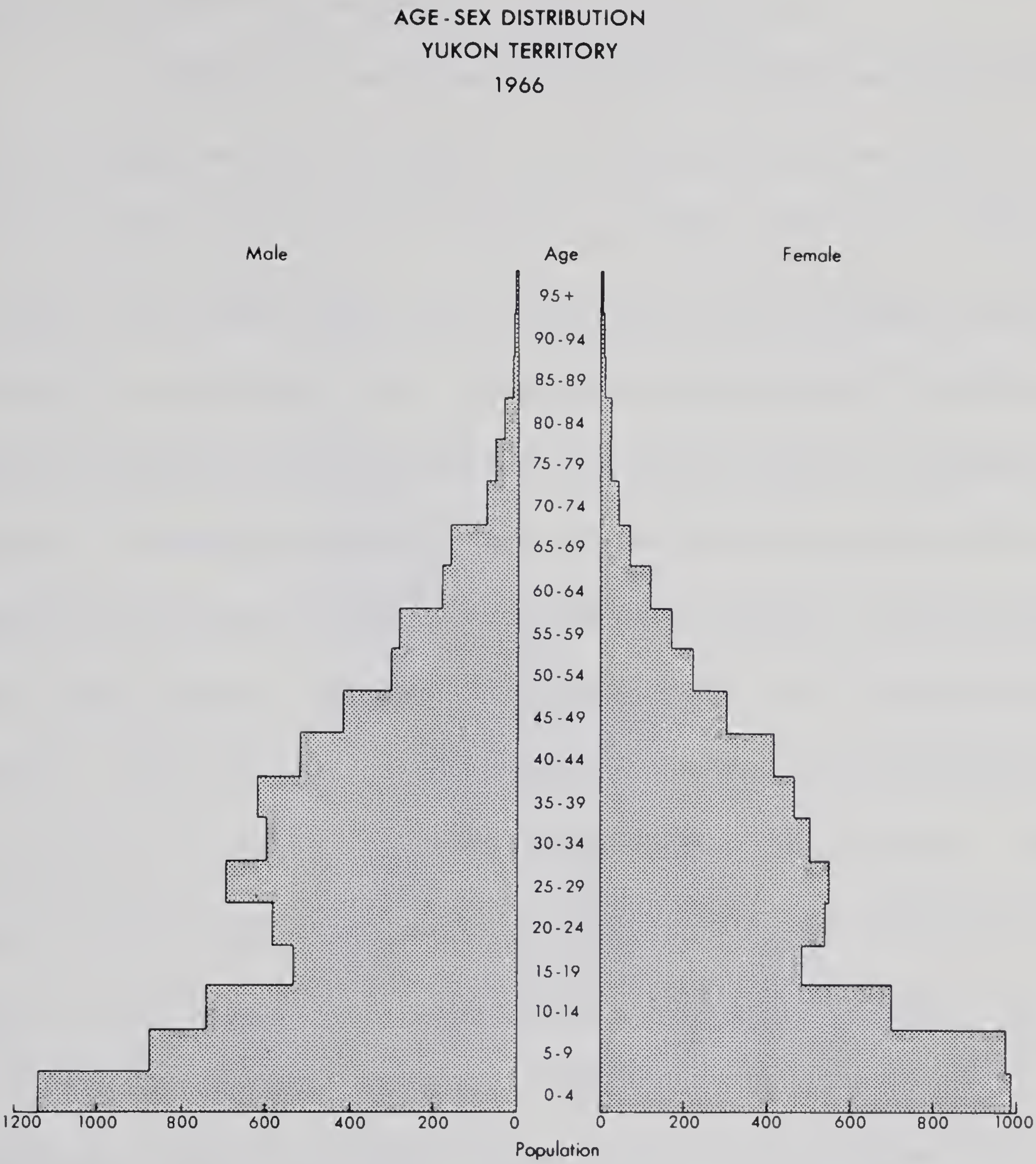
[12] K. J. Rea, The Political Economy of the Canadian North (Toronto: University of Toronto Press, 1968), p. 232. Rea has indicated that as many as 40,000 men were employed in the construction of the highway. The greater share of this number were in the Yukon Territory for only a brief time.

[13] Y.T. Statistical Appendix, op. cit., p. 12.

POPULATION IN SELECTED YEARS
YUKON TERRITORY

Source: *Yukon Territory Statistical Appendix to the Annual Report of the Commissioner 1970-71 p 12*

Figure 4.



Source: Canada D.B.S. Census of Canada 1966 *Population Vol I*

Figure 5.

years age groups. The ages of ten to nineteen and fifty to seventy-nine are under-represented when the Yukon is compared to the entire population of Canada (Figure 6).[14]

Comparing the population figures for the unincorporated places of fifty persons or more, it is found that between 1961 and 1966 thirteen of the twenty-six places lost population (Table 1). Of the thirteen, three have either been abandoned or the buildings moved, salvaged or destroyed. Two communities which gained population are actually attached to Whitehorse and cannot be viewed as separate entities. It can generally be explained that the communities that gained population were stimulated by exploration activities, the prospects of a new mine opening, or people migrating to the more attractive larger centers. Two new communities which did not exist in 1966 have been established at little expense to the surrounding communities. The impact of the urban explosion has, perhaps, already been felt in the Yukon. According to 1971 estimates, of the sixteen thousand people in the Territory, eleven thousand of them reside in Whitehorse.[15] Thus, Whitehorse can claim roughly 70 per cent of the population of the Territory. It seems clear that the trend is toward the continued decline of

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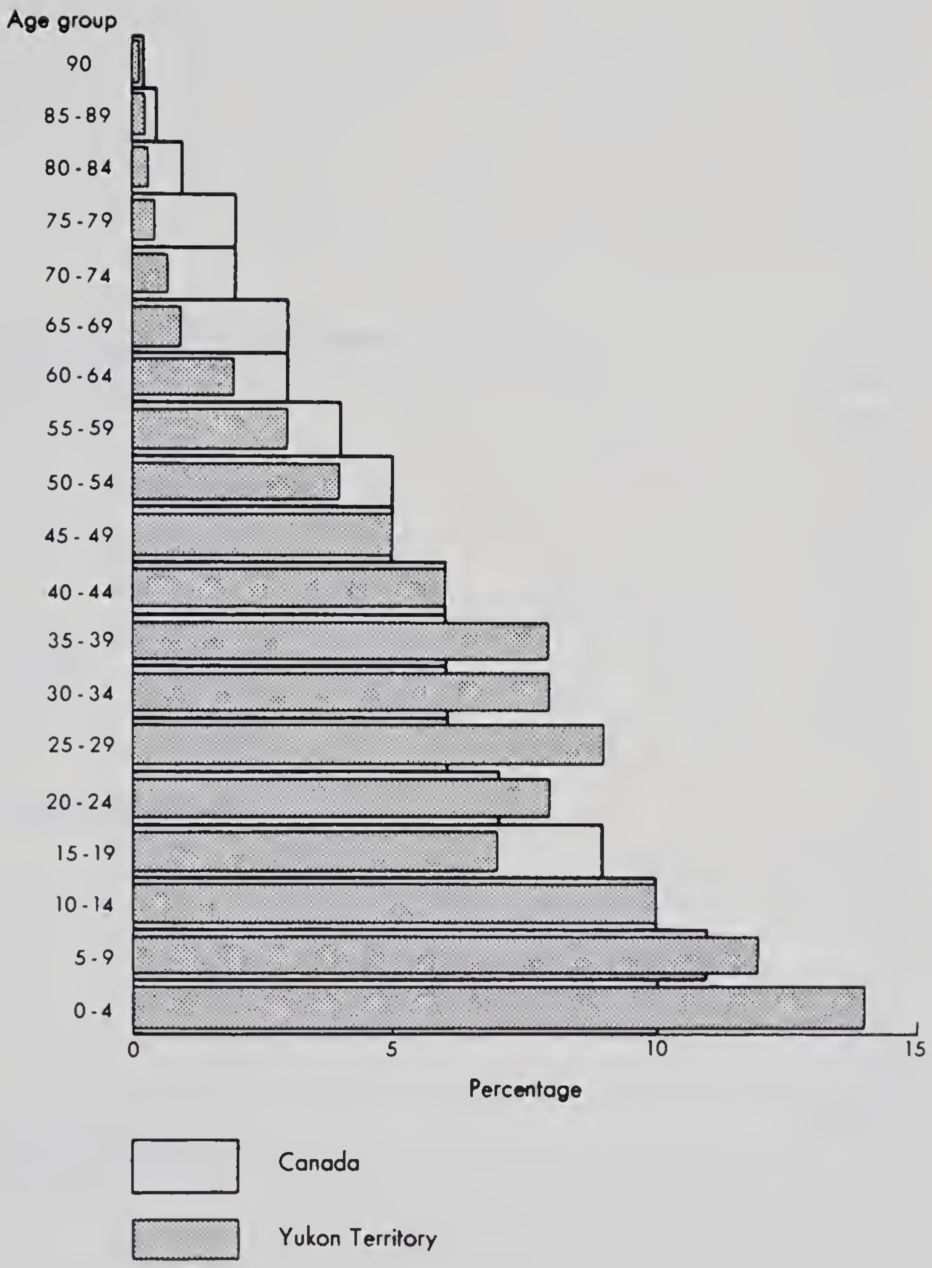
[14] Canada, D.B.S., Census of Canada: 1966, Population, Vol. I.

[15] Personal communication with M. Wise, Statistical and Planning Adviser, Yukon Territorial Government, Whitehorse, Yukon Territory, December 14, 1971.

PERCENTAGE OF POPULATION IN AGE GROUPS
CANADA AND YUKON TERRITORY
1966



Source: Canada D.B.S. Census of Canada 1966 Population Vol I

Figure 6.

TABLE 1

POPULATION OF YUKON COMMUNITIES OF FIFTY PERSONS AND OVER 1961-1966

	1961	1966
Aishihik	61	19
Bear Creek	138	87
Beaver Creek	96	114
Burwash Landing	57	69
Calumet	377	198
Carcross	175	199
Carmacks	218	311
Champagne	56	28
Crestview Subdivision (Whitehorse)	0	162
Dawson (Incorporated)	881	742
Destruction Bay	104	64
Dominion	76	0
Elsa	395	529
Haines Junction	199	195
Keno	156	144
Mayo (Incorporated)	342	479
Old Crow	217	218
Pelly Crossing	151	137
Porter Creek (Whitehorse)	0	489
Ross River	132	173
Sulphur	52	0
Swift River	50	40
Teslin	231	324
Upper Liard	199	148
Watson Lake	597	631
Whitehorse (Incorporated)	5031	4771

Source: Canada, Department of Indian Affairs and Northern Development, Prospectus: North of 60. Queen's Printer, Ottawa, Table 90-1.

many of the small communities with populations of fewer than 150 people, and that a few strategic centers will continue to grow.

Over the years a succession of people have moved into the Yukon Territory and each group has left its mark. Trapper cabins, while not prominent, still exist. The gold rush stimulated the growth of Dawson, Whitehorse, and numerous smaller communities. It also rearranged much of the local landscape: gravels of streams were sluiced and dredged, trees were cut, streams diverted, pipelines and railways were built. During World War II the military passed quickly through the Territory leaving airfields, a highway, tons of equipment, and scores of buildings.

Most of the people associated with these activities were transients and have returned south. A few remained despite the isolation and rigorous climate.

Large-scale mining operations which have come on the scene since World War II have created new communities, extended the transportation and communication network, drawn appreciable numbers of people to the Territory, and significantly modified the local landscape.

CHAPTER III

THE ROLE AND NATURE OF THE YUKON MINING INDUSTRY

> If people are making a living on one particular source, whether that be seals or it be a mine, they cannot in that spot turn to something else. The rules are different.
>
> E. Frederick Roots

Mining and minerals, traditionally, have been prominent in the economic and spatial development of Canada.[1] From 1935 to the present, the production of minerals has contributed between 4 and 9 per cent to the gross national product. In the last decade the figure has been approximately 6 per cent, representing three billion dollars. Canada leads the world in mineral exports with these commodities constituting 28 per cent of total Canadian exports.[2] Canada follows only the United States and the Soviet Union in total mineral production amongst the

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[1] H. A. Innis, "The Canadian Mining Industry," in Mary Q. Innis (ed.), Essays in Canadian Economic History (Toronto: University of Toronto Press, 1956), pp. 309-320.

[2] George Tough, "Mining in the Canadian North," in W. C. Wonders (ed.), The North. (Monograph series, 22nd International Geographical Congress), (Toronto: University of Toronto Press), (in press).

nations of the world.[3]

By the nature of the ore bodies, mining and, hence, miners are not evenly distributed across the country. In the southern areas of Canada relatively few people derive their income from mining, while in other sections entire communities may be directly dependent on mines. Over all, mining employs 2 per cent of Canada's labor force. However, it has been estimated that 14 per cent of the Canadian labor force is employed indirectly by the mining industry.[4]

The symbiotic relationship between mining and transportation has played an important part in changing the map of Canada. Mineral deposits have been developed because of their coincidence with a new transportation artery and, conversely, the construction of roads and railways has been stimulated because of the existence of a promising ore body. Mining has been the raison d'etre for many communities in Canada and has, in many cases, encouraged man to locate beyond the settlement frontier.

In this manner the map of Canada has been changed with the addition of such place names as Schefferville, Sudbury, Thompson, Flin Flon, Yellowknife, and Dawson. More recently two new com-

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[3] Canada, D.B.S., Canada Yearbook 1970-71 (Ottawa: 1971), p. 678.

[4] Aaro Aho, "Mineral Resources Outlook for Yukon." A paper presented at the Fourth Yukon Northern Resource Conference (Whitehorse, Y.T.: April 5, 6, 7, 1972), p. 8.

munities have been founded in the Yukon Territory: Clinton Creek and Faro were established in 1967 and 1968, respectively.

The exploitation of minerals provides the base for the economy of the Yukon Territory. It has been suggested that a total of 40 per cent of working Yukoners are dependent on mining.[5] Because there are few other employment alternatives, the importance of mining in the Yukon takes on even greater significance. In the following table the dominance of the mineral industry is clear when it is compared with other forms of primary production.

TABLE 2

VALUE OF PRIMARY PRODUCTION

	1961	1970	
Minerals Shipped[a]	$13,330,000	$79,672,000	
Forest Products[b]	364,806	1,151,420	
Fur[c]	105,000	70,000	
Fish[d]	not available	30,000	(1968)
Ag. Produce[e]	15,610	22,480	

Source: Government of the Yukon Territory, Statistical Appendix to the Annual Report of the Commissioner 1970-71 (Whitehorse, Govt. of the Y.T., 1971), 140 pp. (a, p. 50; b, p. 61; c, p. 63; d, p. 66; e, p. 70).

Impressive as the figures for mineral production are, they represent only a fraction of the total value of minerals shipped for the

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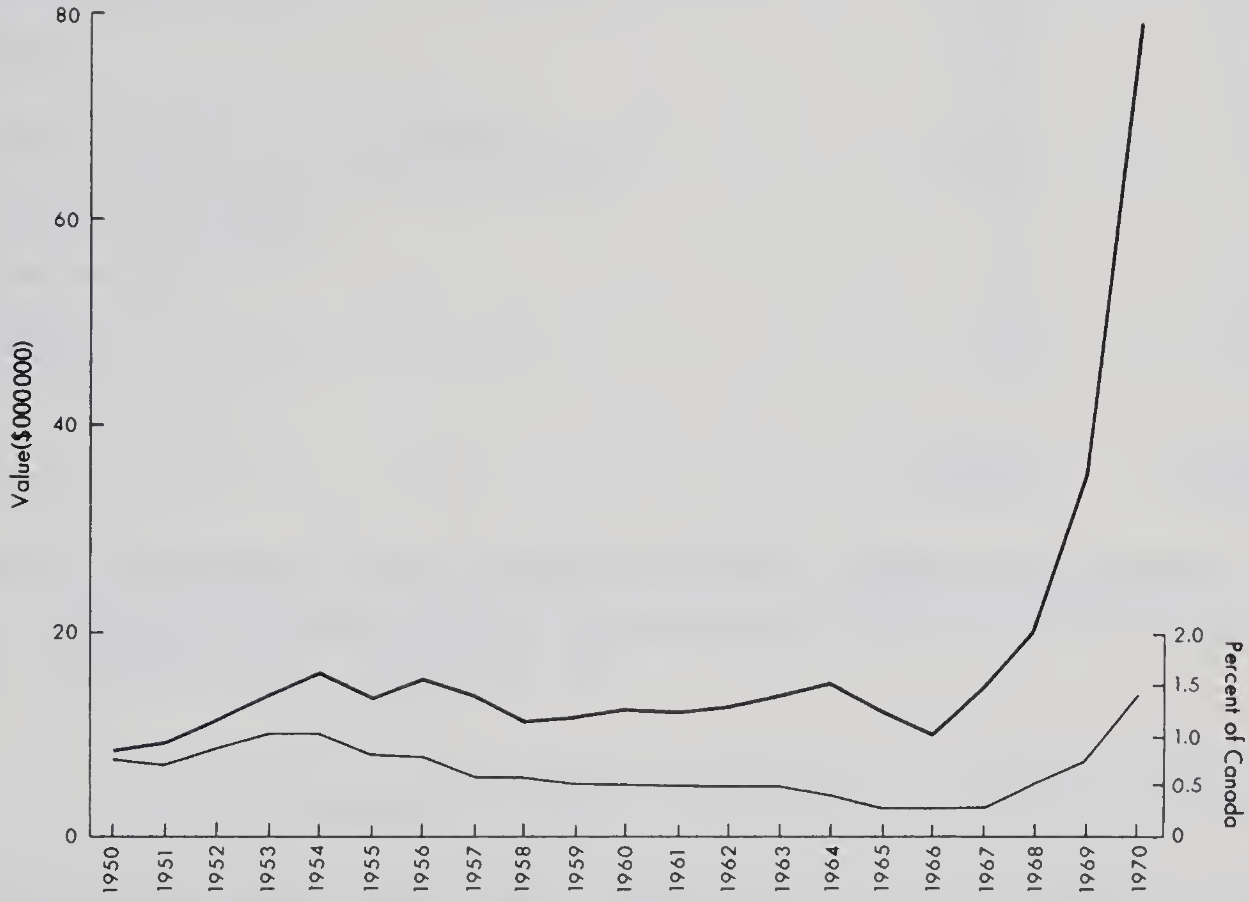
[5] Ibid., p. 29.

entire country. In 1969 the Yukon's contribution was 0.7 per cent and preliminary data for 1970 indicates that the share will be 1.4 per cent (Figure 7). The extraordinary increase in mineral production in the late 1960s was a result of two new mines and mills coming into production. Their contribution, lead, zinc and asbestos, is shown dramatically in Figure 7. Asbestos was not mined in the Yukon until October 1967 when the Clinton Creek operation of Cassiar Asbestos Corporation commenced production. The spectacular increase in lead-zinc production in 1969-70 is a result of the Anvil Mining Corporation Limited which was the catalyst for Faro's development.

Prior to the establishment of these operations, United Keno Hill Mines in the Elsa-Keno Hill area was producing silver, lead, zinc, and cadmium at an unspectacular but steady rate. Other developments, particularly in recent years, have been short-lived. Mining in the Carcross area and the working of the well known Whitehorse copper deposits have been sporadic. Gold mining continues with most of the production stemming from individual operators or small companies reworking old diggings in the Dawson area. Coal mining near Carmacks has provided occasional local employment since 1900. Currently the entire production is utilized in the milling operation of the Anvil Mining Corporation. Only twelve to sixteen miners are employed and usually on a day-to-day basis.

The importance of the mining industry as an employer in the Yukon Territory is indicated in Table 3.

VALUE OF PRODUCERS' SHIPMENTS OF MINERALS
YUKON TERRITORY
1950 - 1970



Source: Yukon Territory Statistical Appendix to the Annual Report of the Commissioner 1970 - 71 p 50

Figure 7.

TABLE 3

ESTIMATED LABOR FORCE BY INDUSTRY, YUKON TERRITORY, 1966

Industry	Number	Labor Force Per Cent
Mines, Quarries, Oil Wells	1,356	19.4
Construction	1,171	16.8
Public Administration and Defence	1,023	14.7
Transportation, Communications, and other Utilities	847	12.1
Services	823	11.8
Trade	713	10.2
Education, Health and Welfare	576	8.2
Industry, unspecified and undefined	256	3.7
Fishing and Trapping	77	1.1
Manufacturing	65	0.9
Forestry	42	0.6
Agriculture	34	0.5
	6,983	100.0

Source: Government of the Yukon Territory, Statistical Appendix to the Annual Report of the Commissioner 1970-71 (Whitehorse, Govt. of the Y.T., 1971), p. 22.

While the actual number employed in mining was 20 per cent of the labor force in 1966, such a figure does not represent the other industries dependent on mining. For example, the construction and the transportation-communication industries are directly related to mining. A close relationship also exists between mining and manufacturing, trade and services.

Preliminary data for 1970 indicates that the total number employed has remained approximately the same as in 1966, but that

change has occurred in the various segments of Yukon industry. From 1966 to 1970 the mining industry provided employment for an additional six hundred workers, whereas the construction industry lost three hundred. Areas of modest increase over 1968 are in transportation-communication and the service segments.[6]

As noted above, the construction industry is closely allied with mining development. In 1966 the gross value of construction in the Yukon Territory was slightly in excess of nineteen million dollars. Of this figure, seven million dollars or 37 per cent was spent directly by the mining industry. In 1967 the figure increased to eleven million dollars. Areas of construction related to mining include residential building construction, repair and construction of roads and bridges, and the erection of power transmission lines (Table 4).

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[6] Wise, *op.cit.*

TABLE 4

ESTIMATED GROSS VALUE OF CONSTRUCTION ACTIVITY YUKON TERRITORY, 1966

	$Million	Approx. %
Buildings		
Government	$ 2.0	11%
Residential & Commercial	1.9	10%
Roads and Bridges		
Construction	4.0	22%
Repairs	1.4	7%
Airfields	0.9	4%
Municipal Development	0.6	2%
Electric Power Transmission	1.4	7%
Mining Construction	7.0	37%
	$19.2	100%

Source: Government of the Yukon Territory, Statistical Appendix to the Annual Report of the Commissioner 1970-71 (Whitehorse, Govt. of the Y.T., 1971), p. 72.

The four years prior to 1966, with no major developments, saw little construction associated with the mining industry. The construction initiated in 1966 was associated with the construction phase of the Cassiar and Anvil operations.

It is evident that in the late 1960s the Yukon mining industry experienced a renaissance. Markets for the base ores were available, high grade ore bodies were identified, and techniques of mining-milling and transportation were evolving. As a result of this renewed vigor, some of the industry's characteristics have changed dramatically. Nevertheless some elements of Yukon mining have remained the same and have tended to preserve the flavor of northern mining.

A fundamental characteristic of the industry in the Yukon is its disadvantageous location. The mines are located far from markets and suppliers. The climate and terrain make development expensive. However, in the Yukon these physical elements are not as restrictive as they are in many other places in northern Canada. Transportation costs are high as concentrates move by truck from mill to railhead at Whitehorse, thence 110 miles to tidewater at Skagway. Some transportation costs have actually declined recently. Economies have resulted through the integration of truck, rail, and ship transport and the development of containerization technique.[7] Supplies for construction and operation, fuels, mail, and produce are back-hauled in a similar fashion. An additional cost factor resulting from remoteness is the high inventories required in a complex mining-milling operation.

The activities of mineral exploration and survey parties are hampered by the same factors. The field season is short and the survey areas often remote. The use of fixed wing aircraft, so common in other northern areas, is limited because of the mountainous terrain and absence of lakes which would facilitate float-equipped aircraft. Consequently, the more expensive helicopter is used. Some prospectors and survey parties still rely on horses to move men and material.

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[7] With this technique, material remains in the same container regardless of the mode of transport. This method of transport was pioneered by White Pass and Yukon Route companies between Vancouver and various locations in the Yukon and northern British Columbia as goods are moved by ship, train, and truck.

To counterbalance the high costs of operation due to remoteness, highgrading is still a common practice.[8] However, as mining and milling techniques improve and transportation costs are reduced through volume and efficiency, progressively lower grades of ore can be profitably mined.

The climate, characterized by the long cold winter, does not inhibit open pit or underground mining, but as operations are continued through the winter, costs increase. Energy consumption is high for heat and light. As temperatures approach -40° F., the efficiency of men and equipment decreases rapidly. Transportation arteries and equipment must be operable and considerable sums of money are spent to keep roads clear of snow, ice, and "glaciers".[9]

Another element which adds flavor to the Yukon is the character of the people associated with the mining industry. In spite of sophisticated scientific analysis, the success of a mining venture cannot always be predetermined. Thus, there is an air of the unknown buoyed by the hope of a big strike and large development. Usually the dreams of wealth are accompanied by the desire to enjoy the riches in a more southerly region. This attitude is similar to the traditional

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[8] Highgrading refers to the practice of mining only those ores sufficiently rich to cover transportation costs and leave a profit.

[9] "Glaciers" or icing occurs when water seeps from the ground and freezes as it moves down slope. Such occurrences are common where roads interrupt the natural course of drainage.

"grab and git" approach that was typical of the western gold mining era. It is felt that such a "get rich quick" outlook is no longer appropriate to the highly-structured, capital-intensive, wage-oriented industry. Such an attitude may have retarded the establishment of a stable labor force and discouraged the creation of social and cultural amenities. The "get rich quick" myth has been perpetuated even by the Federal Government. In 1966 the Minister of Northern Affairs, in commenting on the desire of people to work in the North, stated:

> there's nothing wrong with Canadians' pioneer blood, young or old, except from time to time it needs stirring. There's one big difference between pioneering today and in the past. The pay is good.[10]

Recently the Commissioner of the Territory has claimed that Yukoners receive the highest weekly wages in the country.[11] Such statements issued without clarification might be considered misleading when it is well known that one of the perennial and major problems of the northern mining industry is the high rate of labor turnover. It is true that earnings are higher but this is primarily because the opportunity exists for the employees to work longer hours.

One of the changes in northern mining has been the shift to a wage-oriented industry. No longer is the miner rewarded by what he

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[10] Canada, Dept. of Northern Affairs and National Resources, Press Release 1-6640: Opportunities in the North (July 7, 1966), p. 1.

[11] Personal communication with James Smith, Commissioner, Yukon Territory, Edmonton, Alberta, January 20, 1971.

could extract from the ground. He is now employed in a complex mine-mill operation that is similar to mining operations everywhere. Even his wages, agreed upon by the local union and the United Steel Workers of America, are comparable to wages paid for similar jobs elsewhere in North America.[12] If he earns higher wages, it is not because his base pay is greater but because he takes the opportunity to work longer hours.

The mine, too, has changed. The two new developments in the Yukon are large open pit mines which require heavy and very expensive equipment. Many of the workers are not miners in the traditional sense, but heavy equipment operators doing tasks akin to any large earth-moving project.

The mining camps of former years are being phased out. In their place are communities offering a variety of housing, extensive recreational facilities, and modern supermarkets. Such amenities are provided to attract and retain skilled employees.

Finally, the new era of mining can be characterized by the active role of government. Assistance has been provided for the construction of airfields, roads and bridges, and for the establishment of Government services. Hydro-electric installations have been expanded and transmission lines extended.

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[12] Personal communication with W. Morris, Personnel Director, Anvil Mining Corporation Limited, Faro, Yukon Territory, December 2, 1971.

While mining has experienced major expansion of late and has assumed many of the characteristics of large-scale southern mining, some of the old constraints still remain retaining some of the traditional flavor. The elements of distance, climate, and terrain cannot be changed even though technology has lessened the influence of these elements.

CHAPTER IV

ELSA

> A country whose buildings are of wood, can never increase in its improvements to any great degree.
>
> Thomas Jefferson
> Notes on Virginia

Early Settlement

Elsa is the oldest of the communities studied.[1] The earliest recorded mining activity in the area was 1887. The impetus for the activity was the 1894 discovery of gold in the creeks of the Keno Hill area, and by 1902 a wagon road existed from Mayo to the southeast side of Galena Hill. By 1906 lead and silver were being mined on the northwest slopes. The mine and camp were reached by a wagon road. The operation consisted of a shaft mine with an array of boilers, compressors, pumps, and "comfortable buildings including

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[1] The name Elsa is taken from the claim which initially produced ore. Such is also the case for Faro. The conciseness of the names is characteristic since they often have to be inscribed on a claim marker under inclement conditions.

an assay laboratory."[2] This site was three to five miles from the present Elsa and was the first mining camp in the vicinity that utilized frame buildings instead of tents. Field searches in 1971 produced no evidence of the camp.

The prevailing feeling that only gold could be profitably mined in the Yukon retarded the exploitation of the rich silver veins of Galena and Keno Hill.[3] However, successful silver mining in 1920 by Keno Hill Limited, a subsidiary of the Yukon Gold Company of Dawson, helped dispell the "only gold" attitude and by 1921 six hundred claims were staked in the Keno Hill area. In 1923 further discoveries were made on the northwest slopes of Galena Hill. By 1925 there were twelve properties under exploitation including the Elsa claim.[4]

The first mill in the region was situated near Keno in 1924 where a boom town was already established. Concentrates were hauled by tractors to the Mayo docks on the Stewart River thirty-seven miles

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[2] D. D. Cairnes, "Mayo Area," in H. S. Bostock (ed.), Y.T. Selected Field Reports of the Geological Survey of Canada 1898 to 1933. Geol. Survey of Canada, Dept. of Mines and Tech. Surveys, Memoir 284 (Ottawa: 1957), p. 401.

[3] H. S. Bostock, "Potential Mineral Resources of Yukon Territory." Paper 50-14 Geol. Survey of Canada, Dept. of Mines and Tech. Surveys (Ottawa: 1950), p. 1.

[4] C. H. Stockwell, "Galena Hill, Mayo District," in H. S. Bostock (ed.), op. cit. (1957), p. 551.

south.[5] Deposits in the Keno Hill area were assumed exhausted in November 1932 when the mill was closed. Prospects were bright, however, on Galena Hill. The mill was then moved seven miles to the Elsa property during the winter of 1932-33, and in 1935 the mill was expanded. Prospecting ceased in the area during the 1930s as men were employed in the mines, mill, and in grading the Elsa-Mayo road. Only one new claim was developed during this period and, with the ore bodies depleted, the operation terminated in 1942.

It was during the 1930s that Elsa's settlement pattern began to emerge. Wheeled vehicles were at a minimum. All the employees had to walk to work. Thus the bunkhouses, cafeteria, recreation hall, concentrator, and warehouse were closely grouped. Poor road conditions also influenced the nature of the settlement. The main road had only recently been improved from a two-rutted wagon road and was difficult to travel in any season, particularly in spring and early summer, as the ground continuously thawed. Located on the steepest side of Galena Hill, the buildings were situated on either side of the portal to reduce the distance between the various structures. But to retain a common grade and avoid movement up- and downslope, the buildings tended to be arranged along contours. The movement of men and machines was along contours, while the flow of ore into and through

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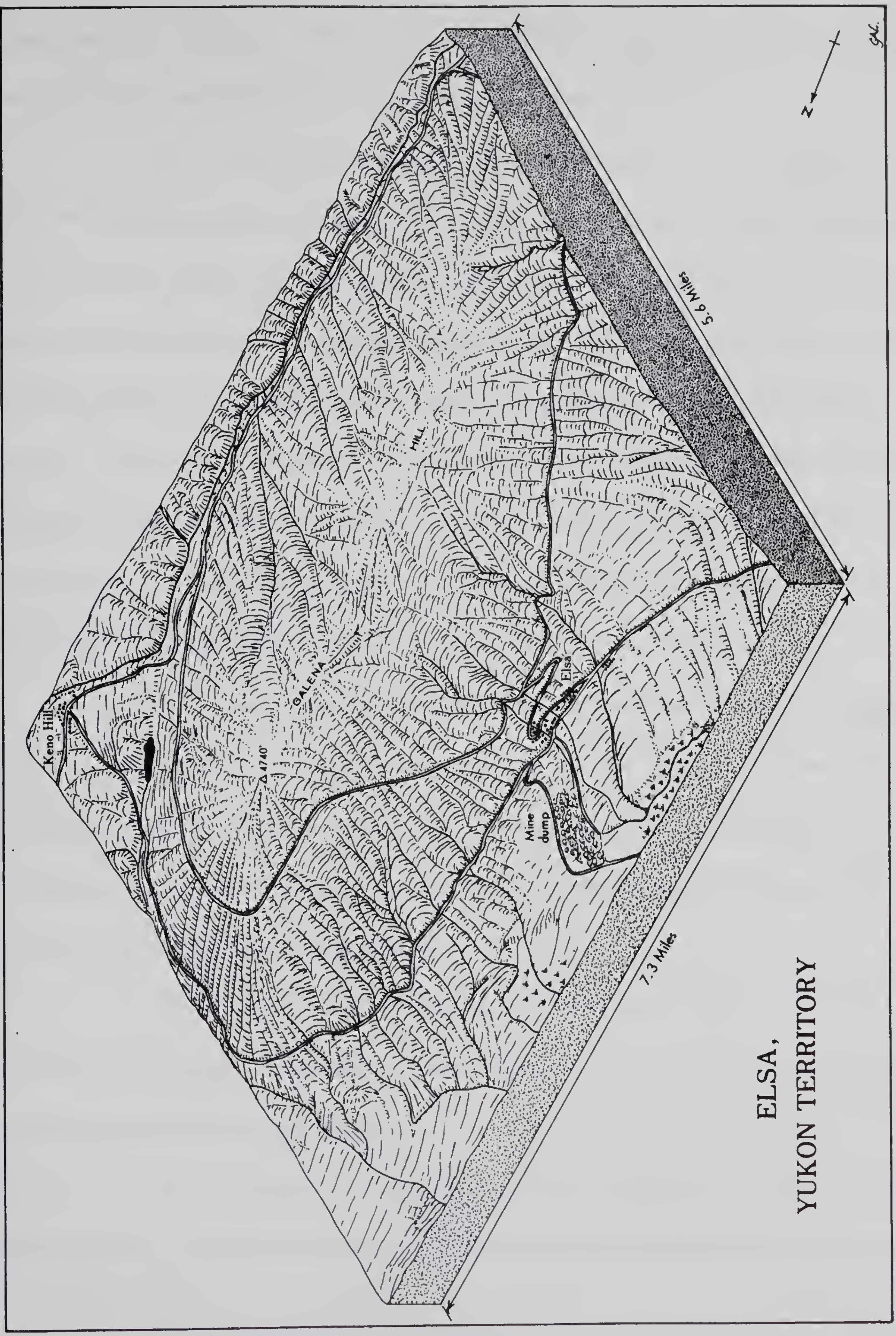
[5] K. J. Rea, The Political Economy of the Canadian North (Toronto: University of Toronto Press, 1968), p. 107.

the mill tended across contours moving downslope by gravity. Concentrates and tailings were discharged from the mill downslope from the portal. The transportation difficulties were so serious that camps were constructed at other claims affiliated with the Elsa property even though they were separated by only a few miles. The temporary camps were supplied and tended periodically from Elsa.

In 1945 the Keno Hill Mining Company Limited was formed and consolidated a number of properties in the Elsa area. The company was reorganized in 1948 as United Keno Hill Mines Limited and was absorbed in 1962 by Falconbridge Nickel Mines Limited. At the time of consolidation, other sites were considered for townsite development. The recessional moraine forming Hanson Lakes in the McQuesten Valley was carefully considered. The site was attractive, wooded, and well-drained, but because of its low relative elevation was subjected to very low temperatures and further consideration was abandoned. The 1950s were years of steady growth and the Elsa townsite expanded on the original claim following the pattern existing since the 1930s.

Physical Characteristics

Galena Hill lies within the northeastern part of the Yukon Plateau. It trends northeast and is approximately eight miles long and four miles wide (Figure 8). Bounded by Duncan Creek on the southeast and the valley of the McQuesten River, Galena Hill's maximum elevation is 4,740 feet which is twenty-five hundred feet above the



ELSA,
YUKON TERRITORY

Figure 8.

surrounding valleys. The southern slope is moderate while the northwestern and southeastern slopes are considered steep.

The terrain above forty-three hundred feet is relatively flat and rolling marked by several level grassy meadows. The vegetation on the lower slopes is characterized by low black spruce with the occasional white spruce (Picea glauca), and in the valleys and poorly drained areas are black spruce (Picea mariana). The large white spruce that were observed in 1904 in "groves with many trees of twenty inches diameter, with some individuals as large as thirty inches in diameter,"[6] are no longer seen. Presumably they were cut for use as lumber, mine timbers, or fuel.

The longer axis of the Hill is crossed on its flanks by several streams which have cut gulches ten to thirty feet deep. These fault-controlled gulches were the focus of many of the first mining ventures. On the northwestern slope, the principal streams are Galena, Flat, Brefalt, and the Porcupine Gulch.

Most of the entire region has been glaciated. The valleys are characteristically U-shaped. Galena Hill is mantled with coarse till from five to twenty feet deep.

The region is in the zone of discontinuous but widespread permafrost. The permafrost's occurrence is dependent upon elevation,

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[6] Joseph Kelle, "The Duncan Creek Mining District," in H. S. Bostock (ed.), op. cit., p. 143.

exposure, and vegetative cover. Where surface and underground waters are flowing, the permafrost has disappeared. On the northwestern slope of Galena Hill, frost and ice lenses have been encountered at depths of 250 and 450 feet.[7] Permafrost is everywhere present in Elsa, and the active layer is thought to be from twelve to eighteen inches.[8] The generally low precipitation and particularly the well-drained soil deters the accumulation of high ice-content permafrost.

Elsa's climate is similar to the Yukon's in general, but differs slightly because of elevation and aspect (Table 5). At three thousand feet Elsa is eight hundred feet above the McQuesten Valley and 1,375 feet higher than Mayo. This difference tends to moderate the temperature, resulting in a narrower range than is experienced in the valley (Figure 9).

When the data from Elsa and neighboring Mayo are compared, the cooler summer and warmer winter experienced at Elsa are apparent. The differences are most distinct in the winter when, during very cold weather, Elsa will frequently be fifteen to twenty degrees warmer than

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[7] R. W. Boyle, Geology, Geochemistry, and Origin of the Lead-Zinc-Silver Deposits of the Keno Hill-Galena Hill Area. Bulletin 111, Geol. Survey of Canada, Dept. of Mines and Tech. Surveys, (Ottawa: 1965), p. 7; and R. J. E. Brown, "Permafrost in Canada," Map published by Div. of Building Research, National Research Council and Geol. Survey of Canada, Map 1246a, (1967).

[8] Personal communication with W. Bennett, Plant Superintendent, United Keno Hill Mines Limited, Elsa, Yukon Territory, November 17, 1971.

TABLE 5

CLIMATIC SUMMARY

ELSA (Lat. 63° 55' N., Long. 135° 29' W. Elev. 3,000 feet a.s.l.)

	Degrees Fahrenheit												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Daily Temp.	-10.6	- 3.4	8.4	25.5	43.1	55.0	56.9	49.7	37.7	21.5	6.6	- 3.3	23.9[a]
Daily Max.	- 5.4	2.7	17.7	35.7	52.7	65.7	67.0	59.1	45.8	28.4	12.2	2.6	32.0[a]
Daily Min.	-15.7		- 1.0		33.7		46.8		29.5		1.0		15.8[a]
Max. Temp.	40.0	45.0	46.0	61.0	78.0	81.0	83.0	80.0	69.0	60.0	42.0	39.0	83.0[b]
Min. Temp.	-50.0	-46.0	-37.0	-21.0	0.0	23.0	30.0	27.0	7.0	-16.0	-42.0	-51.0	-51.0[b]
Precipitation (inches)	.69	.70	.54	.55	.89	1.3	2.48	2.53	1.61	1.19	1.52	1.27	15.27[c]

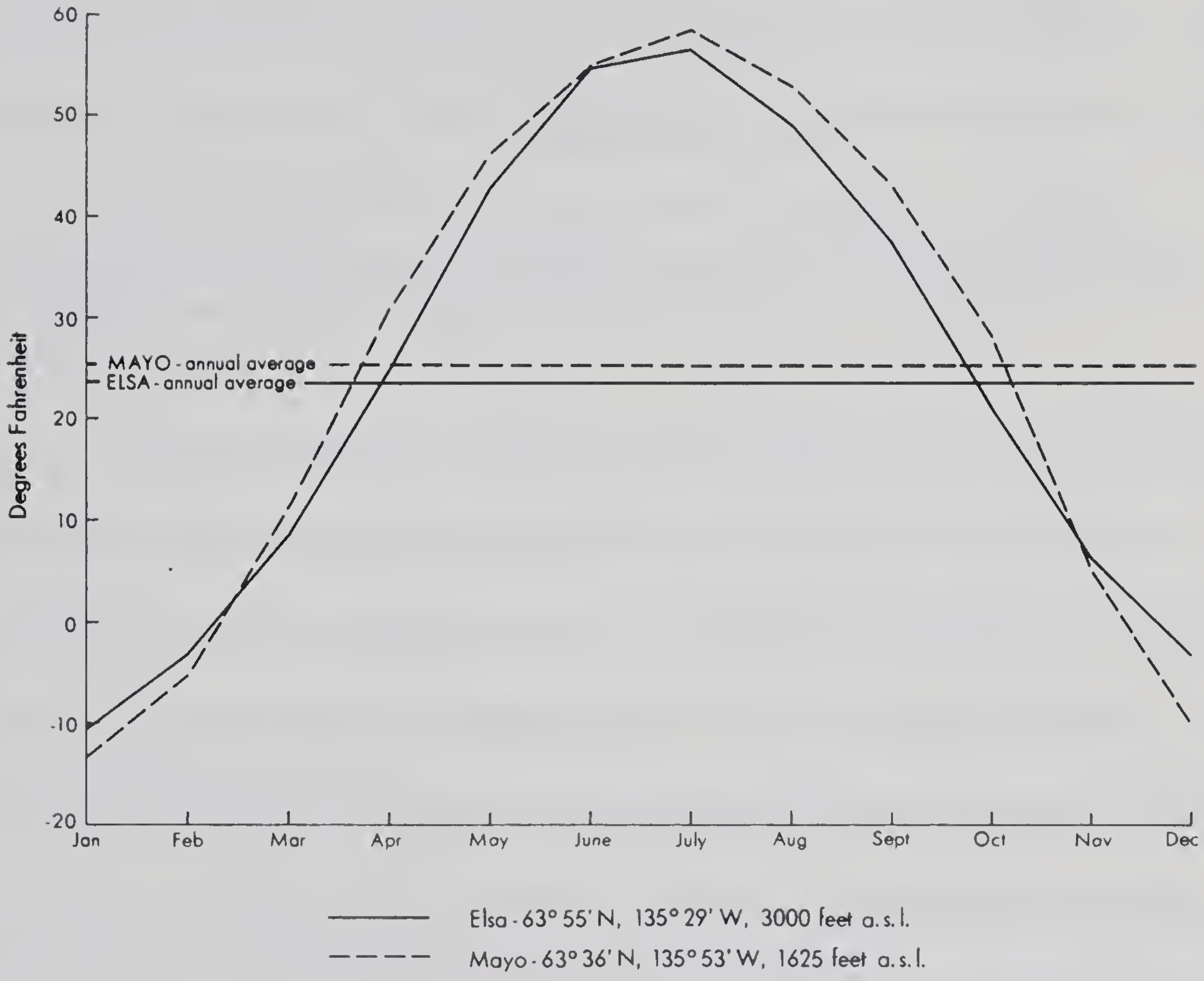
[a] Normals were computed directly from a period of 25 to 30 years within the period 1931-1960.

[b] 10-19 years.

[c] The data for these normals were from the full ten-year period 1951-1960 adjusted to the standard normal period 1931-1960.

Source: Canada, Dept. of Transport, Meteorological Branch, Temperature and Precipitation Tables for the North -- Y.T. and N.W.T. (Toronto: 1967), p. 1.

MEAN DAILY TEMPERATURE AT ELSA AND MAYO
YUKON TERRITORY



Source Temperature and Precipitation Tables for the North - Y T and N W T

Figure 9.

Mayo. Elsa's situation on the northwest-facing slope reduces the amount and effectiveness of insolation. From mid-November to late January the community is in the shadow of Galena Hill. Consequently, no direct sunlight falls on Elsa from mid-November to late January. Even when the sun appears higher in the sky during the summer months, some of its effectiveness is lost at Elsa because of the lower angle of incidence. The reduced insolation has not been measured, but the effects on Elsa's residents was indicated in the Whitehorse Star on February 17, 1972.

> The sun finally crept into Elsa kitchens at a time when many grey-faced residents were actually considering a permanent move south to stock up on the sunshine vitamin.

Of the weather stations in the Yukon, Elsa consistently records one with the greatest amounts of summer precipitation. Much of the rain occurs as a gentle drizzle, frequently lasting for three or four days. Thunderstorms, uncommon for such a high latitude, are observed at Elsa with as many as five noted in one summer.[9] Snow has been observed at Elsa every month, but falls mainly from October through April, with greatest amounts recorded in November and December. The mean annual snowfall is sixty-three inches. Winds, for the most part, are light and variable throughout the year.

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[9] Personal communication with B. Fletcher, Elsa, Yukon Territory, November 19, 1971.

Continued Growth

The broad characteristics of the settlement pattern which existed in the 1930s persist today. The original community focused on the concentrator and mine areas, with dwellings situated linearly to the east and west with a few houses scattered upslope to the south. Bunkhouses, cafeteria, and other facilities for the unmarried men, are located immediately east of the mill. The original small frame houses are typically one-story and show indications of rooms being added at various times. The dwellings east and south of the mill are on a very steep slope which has been terraced artificially. In several cases the terraces are only large enough for the house and perhaps a small porch. Access is gained by a stairway or ramp. A garage or parking stall for a single vehicle is either carved out of the hillside or perched on stilts with the structure extending over the slope. The older frame and asphalt single dwellings to the west of the mine-mill complex occupy a terrace situated immediately north of the road linking Keno, Elsa, and Mayo. This dirt road is the main artery for pedestrian traffic and the large ore and concentrate trucks. For traffic moving directly between Keno and Mayo, an alternate route is available below the settlement.

Expansion of the operations in the 1950s resulted in the construction of small frame houses six-tenths of a mile west of the original settlement (Figure 10). The new area, Flat Creek, takes its name from the deeply incised creek located immediately east of the group of dwellings.

EVOLUTION OF THE ELSA SETTLEMENT PATTERN 1947-1971
YUKON TERRITORY

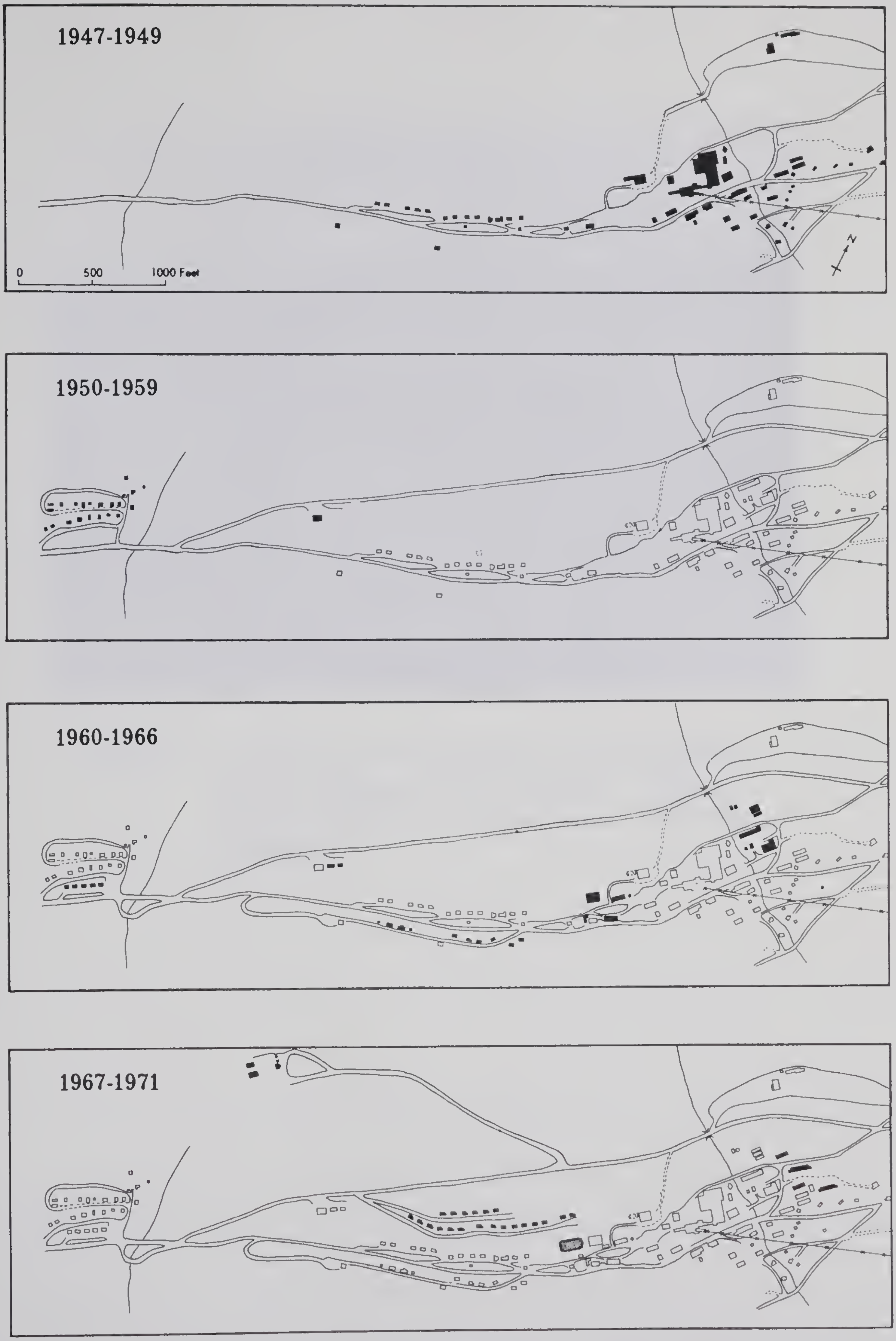

Figure 10.

Plate 1. Looking west-southwest over Elsa with Mount Haldane in the distance. (Photograph courtesy of United Keno Hill Mines Limited.)

By locating houses on this site, steeper land was avoided and elevation similar to the rest of the community was maintained. While the sub-community of Flat Creek is situated on the "main street" of Elsa, it is physically separated and a distinct entity. This separation is real in terms of distance and is sharpened by the Flat Creek gulch. In addition, Flat Creek houses are not connected to the utility system which supplies heat and water to the main segment of Elsa.

During the 1950s four or five dwellings were constructed by miners who were in disagreement with company housing policy. The settlement, called Millerville, is three miles from Elsa on the Mayo Road and is currently occupied by three families from the local area. Today, the buildings can only be described as shacks and are substandard in every respect. Sixteen residents occupy two dwellings, with one of the men working for the mining company. Millerville is a typical squatter settlement commonly associated with many single-enterprise communities. The company, though under no obligation, provides the residents with fuel, medical services, and general welfare. The existence of this unattractive community and its residents, who frequent Elsa, are a source of embarrassment and occasional distress to the company.

The period between 1960-1966 was one of prosperity and steady growth. Two-story frame houses were constructed at Flat Creek and later a terrace was levelled off and houses constructed above the main road. The latter dwellings are prefabricated, simulated-log

buildings with four-inch cedar walls. These buildings are preferred by management because they are less expensive to construct than frame-type buildings, and each dwelling comes fully equipped for occupancy. The log-type structures have the added advantage of being easily constructed and moved by unskilled labor. They resist tenant abrasion and "fit into the environment."[10]

In 1966 falling ore prices and increased operating expenses curtailed the company's operations. The labor force was reduced from 405 to 268 in 1967, and to 197 in 1968. With the smaller labor force it was considered too expensive to maintain the other United Keno Hill communities in the area. Thus the Keno camp at Keno Hill and the Calumet camp, located three miles east of Elsa and a thousand feet upslope, were closed and the camps consolidated into Elsa. The consolidation effort amounted to moving workers, their families, and some houses. All that remains at Calumet are a few abandoned bunkhouses and some mine buildings. At Keno Hill there is a hotel and a couple of stores surrounded by a clutter of buildings, some occupied but most abandoned.

Parallel with and downslope from the already established houses, two terraces were prepared and the better houses from Calumet were moved to new foundations. By 1971 twenty-one houses had been

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[10] Personal communication with D. R. De Laporte, President, United Keno Hill Mines Limited, Toronto, Ontario, February 15, 1972.

Plate 2. One of the older houses in Elsa. Beyond the house, looking north, is the McQuesten River. The photograph was taken November 17, 1971.

Plate 3. A new house in Elsa. The utilidor is beneath the walkway. (November 15, 1971).

moved. Even bunkhouses, cut in half to negotiate the switchbacks, and a church were skidded down Galena Hill. The roads linking Elsa and the remote mines have been improved and are maintained constantly in winter so that workers can be bussed rapidly and safely to their jobs.

From the final pattern a number of sectors emerge (Figure 11). On the east are the facilities for the single men: bunkhouses, cafeteria, pool hall, and the beer parlor, snack bar, and curling club. The original frame dwellings are still occupied and overlook the bunkhouses. Farther west is the mine-mill complex, administrative offices, and houses for single staff.

The next sector contains the Elsa Market (a company store), Post Office, bank, recreation center (with gymnasium, library, and transmitter for taped television programs), and skating rink. The adjacent residential area is situated on a series of four terraces with the school located on the western fringe. Except for Flat Creek and Millerville, the sectors of the community are not exclusive and functions tend to overlap at the margins. This overlapping is especially apparent in the older residential and commercial sectors. A potential source of danger exists where substantially different functions conflict. This is particularly true along the main road which is the artery for all vehicular and pedestrian traffic in the community.

The presence of permafrost and steep slopes has required a variety of construction techniques. Larger mill buildings are constructed

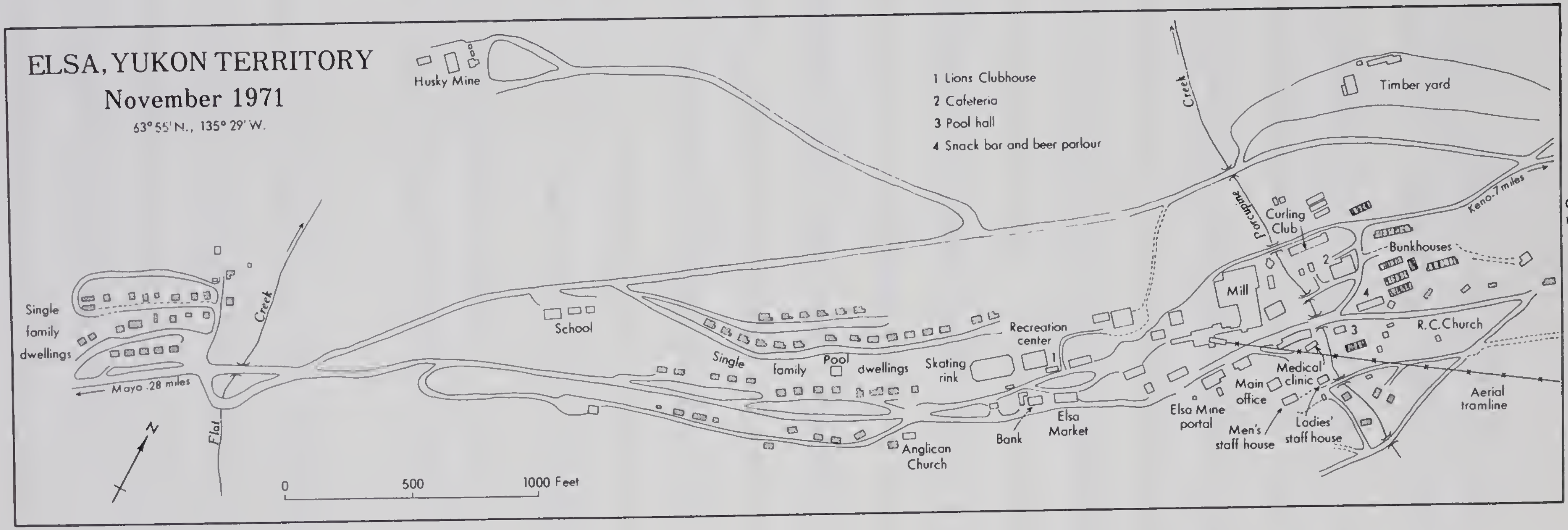
ELSA, YUKON TERRITORY
November 1971
63° 55' N., 135° 29' W.
Husky Mine
1 Lions Clubhouse
2 Cafeteria
3 Pool hall
4 Snack bar and beer parlour
Creek
Timber yard
Porcupine
Curling Club
Keno-7 miles
Bunkhouses
Mill
R.C.Church
Single family dwellings
School
Creek
Single family dwellings
Pool
Skating rink
Recreation center
Mayo-28 miles
Flat
N
0
500
1000 Feet
Anglican Church
Bank
Elsa Market
Elsa Mine portal
Main office
Medical clinic
Men's staff house
Ladies' staff house
Aerial tramline

Figure 11.

in a traditional manner with foundations resting in bedrock or on concrete anchored to the bedrock. Some large frame buildings rest on gravel pads which are maintained by retaining walls. Some older dwellings are cantilevered while others rest on thin gravel pads terraced into the slope. The houses of the latter type are damp, and water has actually flowed through some of them in the fall and spring. The newer prefabricated houses are resting on thick, well-drained gravel pads. The houses moved from Calumet are placed on unexcavated basement foundations. Entrance to the house is gained via a walkway from the upslope side of the house. Despite the efforts to build on a dry foundation, some slumpage occurs each year. Houses are periodically jacked up and supporting gravel is replaced and foundations repaired.

Permafrost precludes burying of utility lines. Thus water and heat pipes connected to the dwellings are contained in an insulated box which is fixed at various levels above the ground. Dwellings in Flat Creek are not heated via the utilidor system. Occasionally the utility boxes are utilized as walks and stairways that connect the various terraces.

The prefabricated houses are very dry and tend to be drafty and cool. To reduce heat loss, insulated ceilings have been installed in many houses. This has helped to prevent some of the heat loss and the white ceilings tend to brighten the dark log interior.

It has been seen that the need for a community did not exist

until the mining operations became so sophisticated as to require a permanent labor force which required housing. Since alternatives were unavailable (the distance to the nearest community, Mayo, being twenty-five miles), it was the company's responsibility to construct and maintain the townsite. Such an activity produces a cost which is not directly related to the operation of the mine or mill, but without which production cannot function. In the narrowest sense, these non-productive costs include only power and transportation.[11] The added costs of erecting, maintaining, and administering a townsite are a burden which manufacturing concerns and companies in more populated areas do not have to bear. The experience at Elsa has shown that for a capital expenditure of six million dollars to increase the productive capacity of the operation, $2,300,000.00 or 38 per cent was spent on facilities to accommodate additional personnel.[12] Once the initial expenditures are made, it is difficult to determine the cost and maintenance of the facilities since they are not distinct from actual operative aspects of the industry. For example, heat and water facilities are shared by the plant and the townsite. Maintenance of houses and utilities is done by appropriate company employees, often during working hours. This indistinct relationship

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[11] Rea, op.cit., p. 60.

[12] C. D. N. Taylor, "The Construction and Operation of Mining Camps in the North," Western Mines and Oil Review, Vol. 32, No. 7, (July 1959), p. 34.

between the operation of a mining company and a townsite was revealed when it was discovered that the total heating cost was exorbitant. The company installed insulated ceilings in some of the homes, which effectively reduced heat loss and resulted in some savings to the company.

People

In late 1971, Elsa had a residential population of approximately five hundred, including ninety families and 175 single people. Children account for 150 of the total population. School-age children attend kindergarten through grade eight at Elsa, with older pupils bussed daily to Mayo for grades nine through eleven. Grade twelve is not offered locally. Twenty students are attending school at Whitehorse or in communities farther south, where they live with relatives.

United Keno Hill Mines Limited employed 284 in late 1971. This figure represents 220 hourly personnel and sixty-four staff. The cafeteria, contractors, and services employed an additional forty, with clerking and teaching positions held by wives of mine employees. Not all of the company employees choose to live in Elsa. Nine workers commute from Keno and four from Mayo.

In the past, much of the hiring has been through the company's agents in Edmonton or Vancouver with the former supplying the greater number. Recently, however, 90 per cent of the new employees have been

hired at Elsa.[13] An effort is made to hire tradesmen into all levels of the labor force. While their skills are underutilized, they represent a skilled labor pool and move up the ranks rapidly. Wherever possible, the hiring policy has been to employ laborers who have a variety of skills. Since the company is far from the national labor pool, it is good management to have a variety of skilled personnel within the operation. The practicality of "bi-occupational" people has been suggested by Stone, particularly in agriculture. The same could be applied to mining.[14]

Essentially because of the mine's remote location, the company offers benefits to encourage the workers to remain for a reasonable period of time. These inducements include paying costs of transportation to Elsa and return fare to Edmonton or Vancouver after one year of employment. Rent and food subsidization, a liberal insurance and medical plan, and, for staff, an attractive vacation plan, are further benefits. In addition, a wide variety of recreation facilities and organizations are available. The opportunity exists to accumulate more money than in other jobs, and employment is available on a steady basis without layoffs. Other job benefits of an intangible nature are a relaxed work

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[13] Personal communication with L. Stubbins, Personnel Director, United Keno Hill Mines Limited, Elsa, Yukon Territory, November 16, 1972.

[14] K. H. Stone, "Geographic Aspects of Planning for New Rural Settling in the Free World's Northern Lands," in Saul B. Cohen (ed.), Problems and Trends in American Geography (New York: Basic Books, Inc. 1967), p. 234.

pace and life-style, with the opportunity for enjoying the out-of-doors.

Despite these efforts, high labor turnover has continued to be a problem for United Keno Hill. In November 1971, the mine employed 220 hourly-rated workers. Of that number, ninety-six or 43 per cent had been hired in 1971, and 56 per cent had worked for the company only since 1970 (Figure 12). It was felt that the figures represented on the graph are typical. The majority of the employees have been with the company for four years. Those employed prior to 1968, 24 per cent, were considered to be reliable and committed to their jobs and the community for the foreseeable future. It is expected that those employed more recently will turn over much more rapidly.

TABLE 6

EMPLOYMENT CHARACTERISTICS OF HOURLY PERSONNEL
UNITED KENO HILL MINES LIMITED
1966-1970

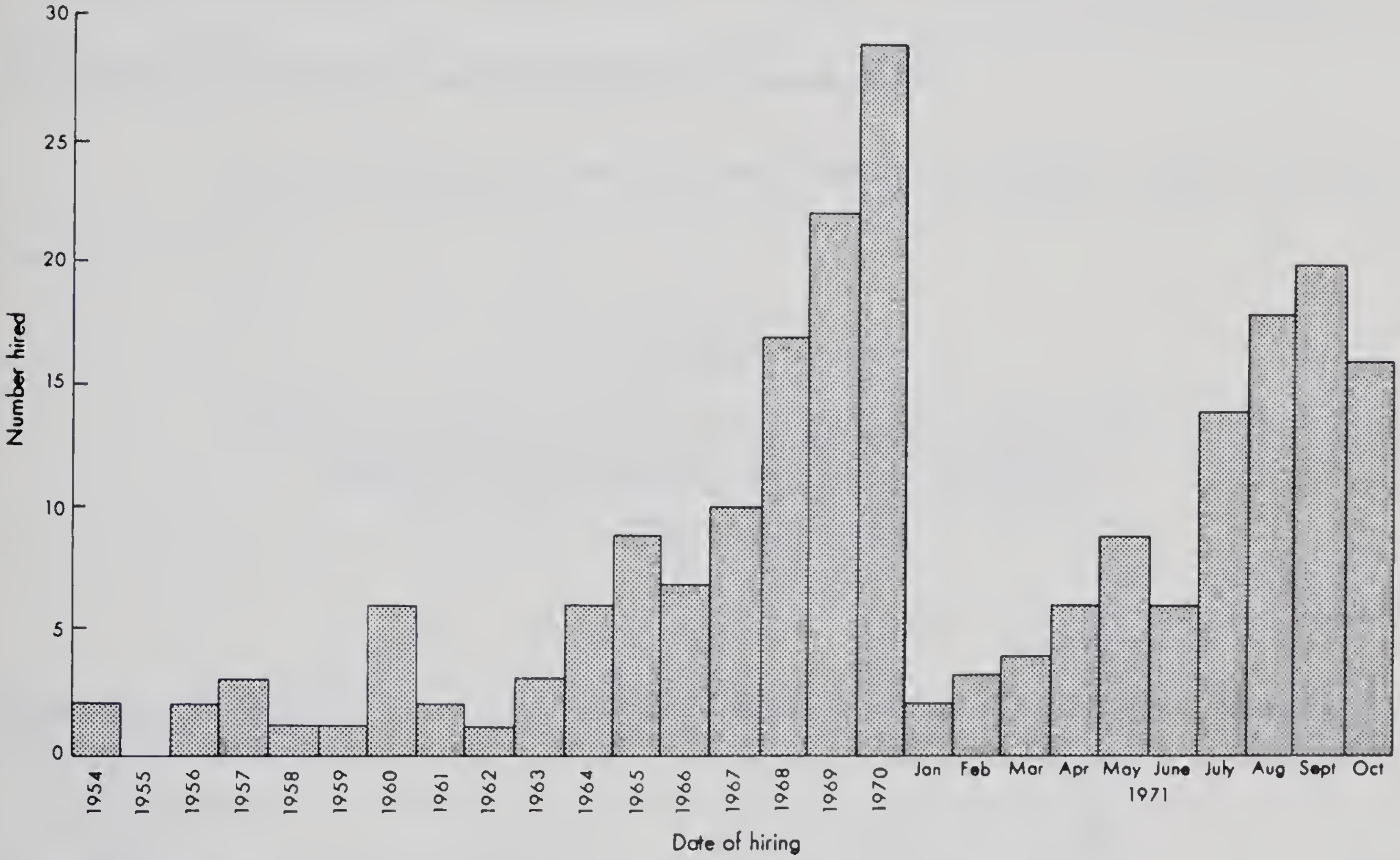
	1966	1967	1968	1969	1970
Average Yearly Payroll	405	268	193	209	208
Hirings	815	367	160	208	187
Separations*	896	477	155	193	191

*Includes individuals fired and those who left voluntarily before retirement.

Source: Company records.

The average yearly payroll figures reflect the reduction that occurred from 1966 through 1968 when operations were curtailed. When hirings are compared to the average yearly payroll, it can be seen that

HOURLY RATED EMPLOYEES PRESENTLY WORKING FOR UNITED KENO HILL MINES LIMITED
ELSA, YUKON TERRITORY
1954 - October 1971



Source: *United Keno Hills Mines Limited, Seniority List November 17, 1971*

Figure 12.

in 1966 two individuals were hired for each position. The 200 per cent turnover rate of 1966 has not been matched but has fluctuated between 90 per cent and 100 per cent. The greatest turnover took place in the lower levels of the labor class. While the workers in some jobs change several times a year, other jobs are held for longer periods. The turnover figures can be considered slightly inflated because of the practice of workers quitting their jobs for a holiday "outside" and returning after a month or two to be rehired for the same task.

The staff positions are not immune to a high degree of turnover.

TABLE 7

EMPLOYMENT CHARACTERISTICS OF STAFF
UNITED KENO HILL MINES LIMITED
1969-1971

	1969	1970	1971 (10 months)
Average Payroll	60	63	75
Hirings - Total	36	37	39
Married	4	6	5
Single	32	31	34
Separations	39	32	35
Married	5	5	3
Single	34	27	32

Source: Company records.

The gross rate of turnover in the staff group is between 50 and 60 per cent. In 1971 there were forty staff in the single category, with thirty-two separations occurring in this group resulting in a turnover rate approaching 100 per cent. It is clear that the married workers

have a lower turnover rate than the unmarried. More married men would be employed if adequate housing was available. The hirings and separations in this group occurred most frequently in the lower level staff positions with salaries below many of the hourly personnel.

An analysis of the monthly employment data, average payroll, hirings, and separations from 1953-1971 revealed no particular pattern of turnover. The personnel officer did feel that some generalizations could be made. It had been observed that, with the approach of winter, the jobs vacated by people who had intended to work only through the summer were often filled by people from the local area who had been either unemployed or self-employed in the Yukon. This job exchange took place in reverse order in the late spring. The number of separations increased slightly during the period before Christmas. If an employee intended to work for only a short time and did not separate before Christmas, he would usually wait until spring before moving. Normally workers become employed and separated from the company on an individual basis. However, it has been observed that during long periods of inclement weather, when men are confined to their quarters, a group of employees will quit simultaneously. Such mass separations usually occur because of one individual's dissatisfaction lowering the morale of his associates.[15]

A distinctive feature of Elsa's population is the variety of

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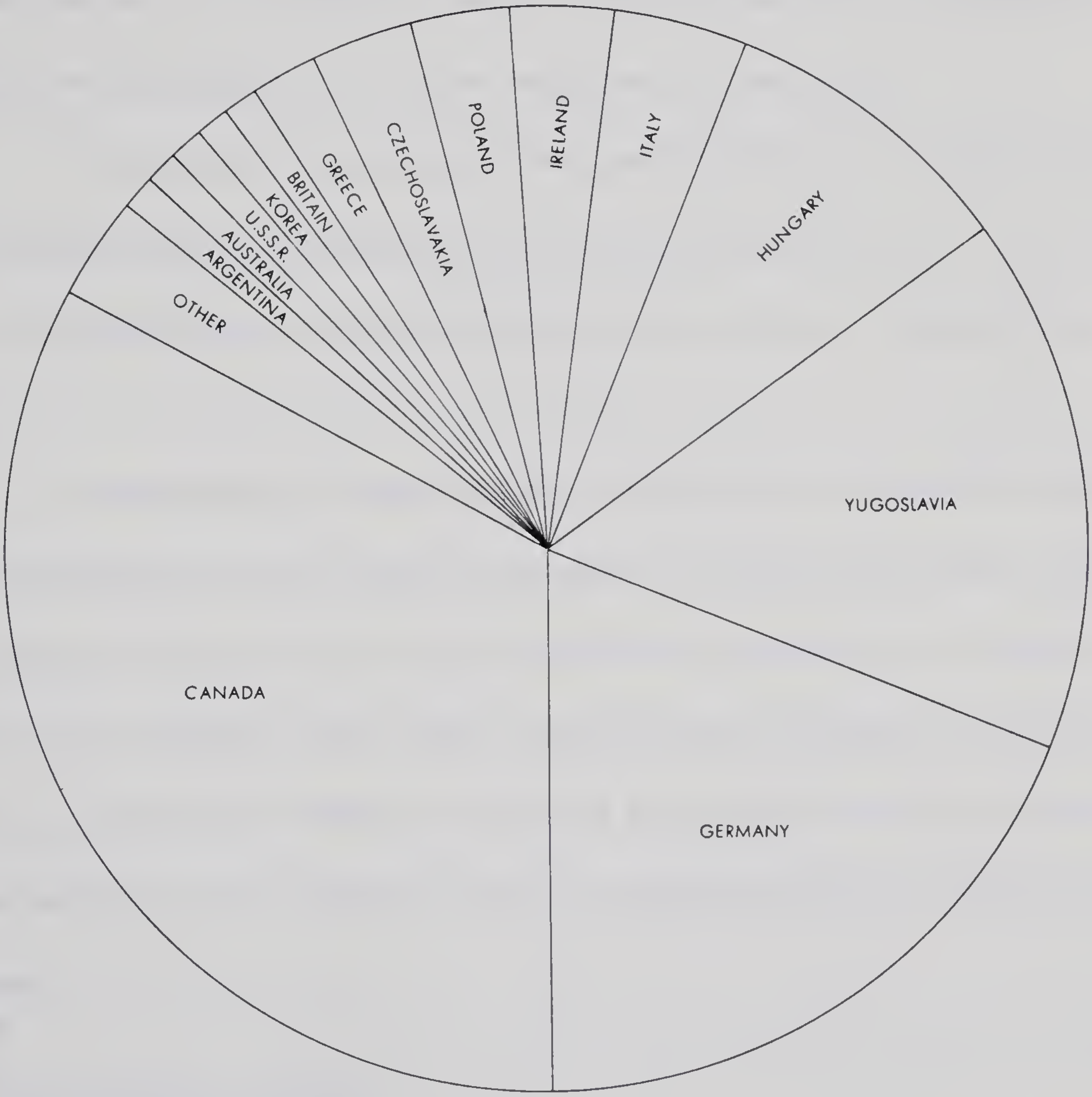
[15] Stubbins, op.cit.

different national origins represented in the labor force. Nineteen different nationalities are present, including many recent immigrants. Canadians constitute a third of the labor force. Immigrants from Germany, Yugoslavia, and Hungary make up another third (Figure 13). The larger non-North American groups are conspicuous by their group cohesiveness. They tend to eat together, share the same areas of the bunkhouses, and enjoy each other's company in the snack bar. While they speak their native language, they are avid television fans and were observed taking their place in the lounge fifteen minutes before broadcast time.

All national groups are not proportionately represented in the various segments of the mining and milling operations. Eastern Europeans are over-represented in underground work where North Americans are conspicuously under-represented. The foreign worker is usually attracted to Elsa on the advice of a friend or relative who has preceded him. They stay with the company for twelve to eighteen months, working hard and living frugally, at which time they move south to seek other employment. In many cases the money saved is used to assist a relative in moving to North America.

The Company Town

The company town has some features which distinguish it from other towns of a similar size. The most conspicuous features in Elsa are the buildings associated with the mining and milling processes.



COUNTRY OF ORIGIN OF THE LABOR FORCE
UNITED KENO HILL MINES LIMITED
ELSA, YUKON TERRITORY
November 17, 1971

Source: Company Records

Figure 13.

The buildings have a drab, industrial look about them and lack any apparent organization in their arrangement around the portal. In addition, the smells and sounds of the industry pervade the community and its environs. Another distinctive feature of the company town is the similarity in housing; the size, style, arrangement, and finishing. The older homes are typically small, unpretentious frame dwellings of one story and finished in white that has since turned gray.

The newer, larger prefabricated dwellings are similar in their size and uniform arrangement on the terraced hillside. They have three or four bedrooms, one bathroom, a large kitchen, and a living room.

The employee hierarchy that exists in the industrial structure is manifested in the settlement pattern. In Elsa the homes of the mine manager and the plant superintendent are situated on the highest terraces some distance from other dwellings and command a view of the entire community. Better residential areas are common to almost all communities, but in Elsa the area is conspicuous by its location and smallness.

Elsa as the Regional Center

The mining operations at Galena Hill have played an important role in the Yukon's economy. United Keno Hill Mines Limited is the longest continually operating mining operation in the Territory and, for many years, has been the only producing lode mine. The extension

of overland transportation in the Yukon has been stimulated by the needs of the mining operation. Until 1950 the shipment of bulk items, concentrates, petroleum, and hardware was confined to the river steamers of the British Yukon Navigation Company. In 1950, a road built by the mining company at government expense, was opened linking Whitehorse and Mayo. Government stipulations agreed to by the company included a provision that 42.5 per cent of the maintenance cost of the highway would be borne by the company in addition to maintaining other roads and the airstrip in the Mayo vicinity.[16]

The shift from water to highway transport was immediate and, though more expensive, the dependable all-season service was worth the additional cost. Until bridges were built spanning the Stewart, Pelly, and Yukon Rivers, the overland traffic required ferries and was halted during break-up and freeze-up. The concentrates are moved from Whitehorse to Skagway via the White Pass and Yukon Route Railway. For long periods in the 1930s and 1950s, the United Keno Hill Mines Limited was the sole generator of freight for the railway, thus giving the railway management some encouragement for continued operation.[17]

Benefits other than transportation accrued to the Mayo-Elsa-

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[16] Rea, op.cit., p. 138.

[17] Personal communication with C. J. Brown, Staff Engineer and Geologist, White Pass and Yukon Route, Whitehorse, Yukon Territory, December 16, 1971.

Keno area due to the company's existence and maturation. The construction of the Mayo hospital was supervised by the company and operated at a profit due to company support.[18] The construction and operation of a hydro-electric generating plant on the Mayo River was initiated by the company in 1952. The company paid for the plant through an eighteen-year contract with the Northern Canada Power Commission. The power is distributed publicly through N.C.P.C., a Crown corporation.

Because of the extensive variety of resources available at the minesite in an otherwise thinly populated area, the company is requested to participate in area projects which would ordinarily be beyond its scope. For example, when the Mayo hydro plant of the Northern Canada Power Commission was damaged, United Keno Hill equipment and men were requested to assist in the repair work.[19] In addition, the company and the Elsa residents are asked to enter in on an extraordinary number of fund-raising events and activities which, in a southern community, would be shared with others.

For decades they have been the economic base of the Mayo-Elsa-Keno area. If the mining should cease and Elsa be forced to close,

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[18] De Laporte, op. cit., February 15, 1972.

[19] Personal communication with J. E. Ashton, Mine Manager, United Keno Hill Mines Limited, Elsa, Yukon Territory, July 17, 1970.

even temporarily, it is questionable if a community would exist again on the same site. The mine manager has stated that if it could be postulated that Elsa did not exist, the proven ore reserves would not justify the erection of a mill and a community. However, production continues but productivity has decreased due to higher overhead costs and antiquated equipment in the mill and townsite.[20]

Suggestions have been made by an official of the Yukon Department of Local Government that it would seem reasonable to close Elsa and move the employees to Mayo. The highway could be paved to facilitate commuting and the company would benefit by not having to maintain and administer a townsite.[21]

Such a move would be of profound value to Mayo. It was the mining activities in the region that stimulated the growth of Mayo. The site was the nearest point to the mines located on a navigable waterway. It was originally occupied by a trading post built in 1900 to serve the local Indians.[22] Later, the settlement functioned as the transhipment point for concentrates destined for smelters, and for goods and equipment

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[20] Idem, November 19, 1971.

[21] Personal communication with W. Bilawich, Director, Department of Local Government, Yukon Territory, Whitehorse, Yukon Territory, December 16, 1971.

[22] F. G. Ridge, "General Principles for Planning Sub-Arctic Communities. Unpublished Ph.D. thesis (McGill University: 1953), p. 315.

necessary for the mines, mill, and men. The activity in the community has fluctuated with the rate of productivity at the mines. With the shift of traffic from the river to the highway in 1950, the importance of Mayo has declined to that of a small commercial center and exploration base. Recently several government agencies have been located in the community. Its present population is approximately 450.

Keno has also lost its function as a mining and milling community. Its residents, approximately one hundred, either work for United Keno Hill Mines Limited, prospect, exist on welfare, or find employment in the famed Keno City Hotel, cafe, or taxi service. The community is not serviced with running water, has no garbage pick-up or radio communication. It receives electric power and is serviced by telephone. The Territorial Government does not foresee the extension of any services to Keno. Government policy has not been established as to the town's fate. However, as land becomes available in the community, the government is withdrawing it from the market. Even this action does not deter the squatters who enjoy living in Keno.

It is the existence of Elsa, a company town, that continues to stimulate economic and social activity in the region.

Resident Interviews

During the second period of field work in Elsa, sixty dwellings were occupied. Out of this number, seventeen occupants participated in

formal interviews. Twelve were held in the main portion of the community and five in Flat Creek. Those interviewed offered a variety of reasons for moving to Elsa, with no one reason predominating--they had come to Elsa because of the job opportunity and the chance to see the North while earning and saving money.[23]

Seventy per cent indicated that they initially planned to stay less than two years.[24] Eleven out of seventeen interviewed have been in Elsa for longer than six years and are indefinite about how much longer they plan on staying. More than half of the group (58 per cent) expect to leave Elsa within five years, while the remainder indicated a desire to stay for the rest of their working lives.

The social, as well as physical, fragmentation of the community was evident when the five residents of Flat Creek were interviewed. They felt detached from Elsa because of their location apart from the main population cluster. These feelings were expressed more frequently during discussions than in written comments. Expecting to live in the major portion of the community, Flat Creek residents were disappointed to find their homes too far from the store and recreation facilities. The school seemed ideally situated for all residents except

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[23] The respondents moved to Elsa for a variety of reasons. The reasons mentioned most frequently were: job opportunity, fifteen; see the North, eleven; earn and save money, nine.

[24] Unless otherwise indicated, all percentages are based on seventeen interviews, which equal 100 per cent.

for two who lived southeast of the mill. These parents did not feel the distance was excessive, but considered the route through the mill yard dangerous.

All residents interviewed agreed that the arrangement of streets and buildings in Elsa was different from the communities where they had previously lived and that the town was unplanned. However, it was what eight residents said they expected since Elsa is an old mining town. Fifty-eight percent of the respondents felt that the dwellings were too close to the mill. Even the five Flat Creek respondents who are farthest from the mill felt their homes were too close.

There was a feeling, expressed by eleven respondents, that Elsa and the houses therein were not as attractive as other places where they had lived. The most common complaints about the homes were that they are cold (48 per cent) and drafty (35 per cent). Complaints were evenly distributed, regardless of the type of dwelling or its location. Older residents were very defensive regarding their quality of housing. They felt that because the company was in a very marginal position, management was doing what it could to maintain the buildings. They felt the younger people expected too much in the way of housing and amenities. The only feature of the homes the residents liked was the low rent.

When asked what they liked about the community, ten residents indicated that the people were the most attractive element in Elsa. Two people said they enjoyed the view and location of the community.

Other elements of the community that residents felt were attractive were the houses (one) and the size of the settlement (one).

The concept of isolation was expressed differently than in the other communities studied. To 50 per cent of the residents isolation meant not being able to see their family for long periods. Isolation was expressed in terms of travel time and distance by only 35 per cent of the respondents. Half the residents interviewed said that they always felt isolated and 25 per cent felt isolated occasionally. The remainder indicated that isolation was related to the complete absence of vehicular transportation and electronic communications. Consequently, these residents never felt isolated in Elsa.

There were no strong trends regarding what the people missed in Elsa as compared to other communities. A third of the respondents said that they missed celebrating holidays with their relatives. Forty-two per cent indicated a desire to visit restaurants and lounges with live entertainment. Consumer needs are met through the company store and catalog purchases. but residents miss a variety of consumer products and the opportunity of going into a store "just to look." Ten of the seventeen interviewees were aware they represented a very small market for commerce and, therefore, had no complaints about the lack of variety available at the store.

Elsa residents (76 per cent) felt that they spent less time watching television and visiting the beer hall than they did previously.

Hunting and fishing are favorite pastimes with 60 per cent of those interviewed. The only activity that Elsa residents indicated doing more often in the North than where they lived previously was listening to the radio (53 per cent).

Everyone had a car or pick-up truck, and travel is popular. Seventy per cent travel in the area at least once every two weeks. These trips are usually day-trips to Mayo or Keno for shopping or visiting. Overnight or weekend trips to Whitehorse are commonly made once every three months. Generally excursions outside the Yukon are made once a year, and most usually to Alberta and British Columbia. Twenty-five per cent go "out" only once every two or three years.

The more frequent and established contact with the local area and the Yukon is indicated by substantial interest shown in the Whitehorse Star newspaper. Nearly 70 per cent read the Star, while 50 per cent of the respondents read a newspaper with national stature; the Toronto Globe and Mail and the Financial Post. Eleven per cent regularly read Vancouver or Edmonton papers.

The outstanding reason for residents (71 per cent) intending to remain in Elsa was the sense of security they had about their jobs. The opportunity to save money was the other major reason (65 per cent).

Respondents enumerated several elements of the community which needed improving. The majority mentioned roads (71 per cent), entertainment (52 per cent), retail facilities (58 per cent), radio and

television (64 per cent), housing (58 per cent), and medical services (50 per cent). The doctor, a non-conformist and recent arrival in Elsa, was not well accepted in the community at the time of the interviews.

Only one of the problems was thought serious enough for residents to consider leaving Elsa. Forty per cent said the lack of adequate housing and lack of privacy would be a reason for leaving.

The concept of a domed community was unacceptable to the majority in the sample. The 65 per cent who opposed such an idea were adamant in their opposition. Those who were favorable tended to think the idea was at least worthy of a try, but they exhibited only mild interest. The concept of regional centers taking the place of small single-enterprise communities was accepted by 25 per cent of the respondents, in principle. However, when it was suggested that such a concept be applied locally, with Mayo as the appropriate regional center, the reaction was unanimously negative. Mayo was rejected initially because of its colder climate. Moreover, Elsa residents recognize it is the mine that is the economic base of the area and they resent the fact that Mayo has the hospital and other government facilities.

All respondents felt they lived in the North and they were quite specific in their description of the North. To 80 per cent of the sample, the North meant an opportunity to improve themselves, to live on the frontier, and enjoy the adventures of such a life. Sixty-five per cent described the North in terms of its physical characteristics:

climate, mountains, and summer insects. Fifty per cent felt that the North is a friendly place where your neighbors will "lend you a hand."

Summary

United Keno Hill Mines and predecessor companies have been the agents for establishing and maintaining a community beyond the fringe of permanent settlement. Elsa, tied to the ore deposit, has grown almost haphazardly with little advanced planning. The undesirable northern exposure is tempered by the modifying effect of temperature that comes with the higher elevation and by the view of the McQuesten Valley and snowcapped Mount Haldane in the distance.

Recently the company has suffered from a shortage of skilled labor, rising overhead costs, and decreasing ore reserves. To offset the higher costs, the company curtailed the less productive mines, reduced the work force, and consolidated the townsites. In 1968 a complete shutdown was rumored, but production continued. The operations were considered marginal in the summer of 1970, with less than two years' known reserves.[25] Since then an active exploration program has resulted in some encouragement.

Despite periods of uncertainty in the mine's operation, the residents seem unconcerned. They recognize that ore eventually runs out. In the meantime, they have settled in Elsa and seem content.

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[25] Ashton, _op.cit._, July 17, 1970.

CHAPTER V

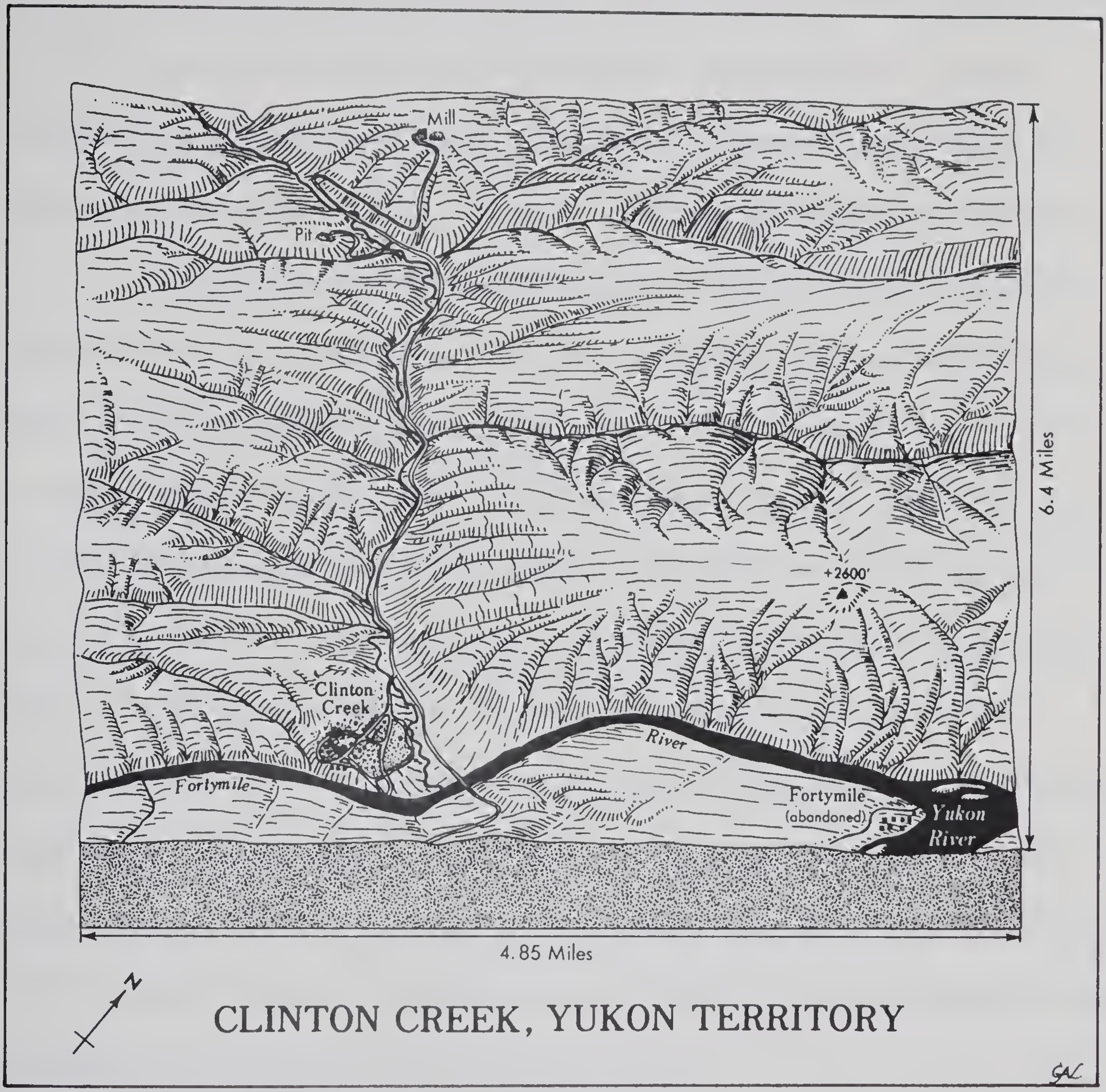
CLINTON CREEK

> Our task in this very complicated field of human relations and of living together...is to consider the relationship between urban development and the needs and desires of the people who will live within its boundaries.
>
> J. D. Christian, Pres.,
> Cassiar Asbestos Corp. Ltd.

Clinton Creek is a community created in 1968 by the Cassiar Asbestos Corporation Limited. It has the distinction of being Canada's most northerly town which is accessible by road most of the year. The absence of a bridge over the Yukon River at Dawson isolates the community during break-up and freeze-up. The distance between Dawson and Clinton Creek is fifty miles via air and sixty-eight miles over the highway.

Physical Characteristics

The community is situated on the north bank of the Fortymile River, three miles from its confluence with the Yukon (Figure 14). Topographically the area consists of broad rounded hills interrupted by



CLINTON CREEK, YUKON TERRITORY

Figure 14.

deeply incised streams in a dendritic pattern. The higher hills near Clinton Creek rise to four thousand feet, which is three thousand feet above the elevation of the Yukon River. The coarse mantle which covers the land is generally well-drained with rock outcroppings infrequent. The area has not been glaciated. The town, Clinton Creek, takes its name from the nearby Creek which is tributary to the Fortymile River.

Based on only five years' data, it appears that the climate of Clinton Creek is similar to Dawson's. Slightly warmer winters and cooler summers result from the higher elevation of the Clinton Creek recording station (Figure 15). Precipitation is meager with an average of 13.6 inches annually for 1965-1970. It is apparent that temperatures vary considerably with local relief. The weather station is at the mine office at 1,890 feet, while the community's elevation is 1,250 feet. Such a difference accounts for warmer winter temperatures experienced at the mine and mill site. This difference between the daily lows generally amounts to 10° F. to 15° F.[1] On days when the temperature was -35° F. at the townsite, temperatures of -40° F. were recorded 250 feet downslope on the bank of the Fortymile River.

Permafrost is present everywhere in Clinton Creek, but the porous mantle has reduced the probability of high ice-content soils. The depths at which permafrost is encountered varies widely. In some

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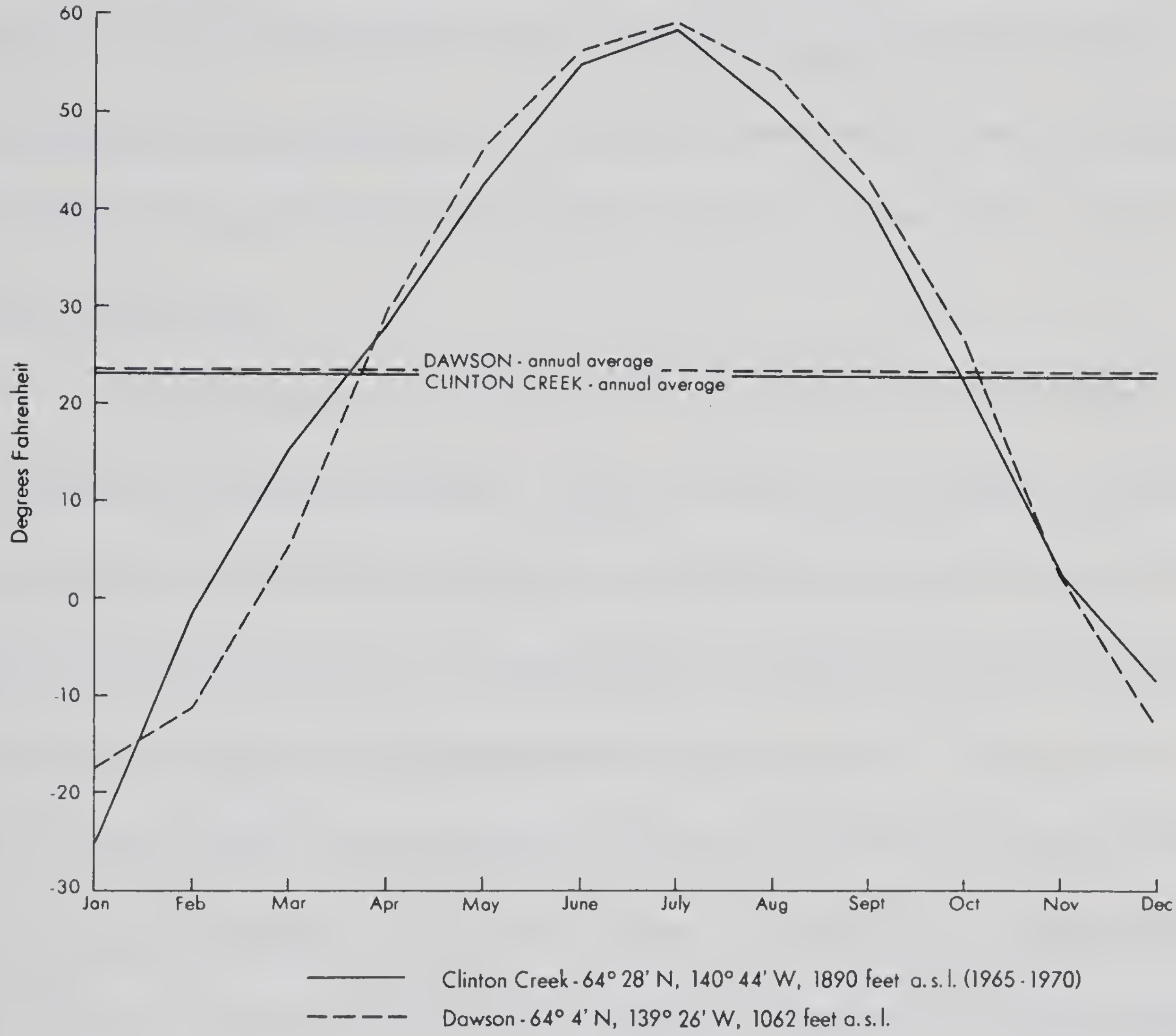
[1] Personal communication with John Drewe, Chief Engineer, Cassiar Asbestos Corporation Limited, Clinton Mine, Clinton Creek, Yukon Territory, November 23, 1971.

MEAN DAILY TEMPERATURE AT CLINTON CREEK AND DAWSON
YUKON TERRITORY



Sources Clinton Creek *Company Records*
Dawson *Temperature and Precipitation Tables for the North - Y T. and N W T*

Figure 15.

areas it is almost at the surface, protected by a thick layer of organic material. Elsewhere, particularly in gravels, permafrost has been found in lenses at depths of twenty feet.

Compared to the Elsa area, the trees at Clinton Creek are smaller due to the more restrictive climate. The lower slopes of the valleys are covered with white spruce (Picea glauca) giving way to aspen (Populus tremuloides) at the higher elevation. The tree cover thins at thirty-four hundred feet where there is a transition to broad subalpine meadows.

The asbestos ore body on which Clinton Creek is based was discovered in 1957 by a trapper. The ore lies in a geologic formation associated with the Tintina Trench, and additional deposits are thought to exist in the general area. Exploration is difficult because of the absence of outcrops and the remoteness of the area.[2] The mine at Clinton Creek is one of two asbestos mines operated by Cassiar Asbestos Corporation Limited. The other mine, operating for approximately twenty years, is located at Cassiar, British Columbia, ninety miles south of Watson Lake. Although located in British Columbia, the orientation of Cassiar is to the Yukon and Whitehorse. A truck garage located in Whitehorse serves both operations.

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[2] L. H. Green, Lode Mining Potential of Yukon Territory. Paper 67-36, Geol. Survey of Canada, Dept. of Energy, Mines and Resources (Ottawa, 1968), p. 23.

Townsite Planning

Dawson was initially considered to be a base for the employees of the Clinton mining operation, but this idea was quickly discarded.[3] Because there is no bridge across the Yukon at Dawson, the company would be forced to rely on aircraft to transport the men back and forth during freeze-up and break-up. In addition, it was felt that the Sixty-mile Road between Dawson and the Clinton Creek turnoff was dangerous in winter and heavily used by tourists in the summer. The transportation problems appeared to be insurmountable and very expensive. Therefore a site nearer the mine was considered the only alternative.

The advantage of utilizing Dawson was that the community and its services were already in existence. The decision to create a new community raised numerous problems. Basic to the creation of the community was whether it was to be a company town or an open town.

A governmental advisor felt that there were certain advantages in creating an open town which would be a new distribution and supply center.[4] Thus, more of the country would be accessible for

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[3] Personal communication with J. D. Christian, President, Cassiar Asbestos Corporation Limited, Toronto, Ontario, January 28, 1972.

[4] Memo from A. D. Hunt, Acting Director, Resource and Economic Development Group, Department of Indian Affairs and Northern Development, to Executive, Yukon Territory Government, November 15, 1966.

development and tourism. In addition, "the government's objective of expanding the infrastructure and the developing and enlarging of communities is probably achieved to a greater extent by an open town."[5]

However, Hunt, Acting Director of the Resource and Economic Development Group, Department of Northern Affairs, saw disadvantages occurring to the government in developing an open town based on mining. Since the resource base is finite, the mine eventually will close and the need for the town would cease. Those people in the open town who owned property would be adversely affected, as well as local merchants. It was felt that those adversely affected eventually would seek government compensation. In his view,

> whether a town should be opened or closed must be based in part on the anticipated life of the mine, in part, on location, and in a great part on the assessment of whether during the life of the mine, which brings the community to be, there is a good chance of replacing that activity with other more permanent industries. In the case of Clinton Creek, a closed company town situation would in many aspects appear preferable.[6]

The President of Cassiar Asbestos Corporation Limited agreed with the government that if a closed town were developed, it would be advantageous to all concerned if it would utilize the appropriate

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[5] Loc. cit.

[6] Loc. cit.

services already existing in Dawson.[7] Later, at a meeting of government officials in Whitehorse, the concept of establishing a closed community was accepted.[8] In addition, it was the consensus that, by allowing a closed town to develop, Dawson would be economically "protected" and would retain its function as the regional service center.

Despite sincere efforts, the company was unsuccessful in establishing linkages with Dawson business or professional services.[9] This particular difficulty was foreseen and noted early in discussions between the company and the Territorial Government, specifically regarding medical resources. It was felt that neither Clinton Creek nor Dawson would be of sufficient size to warrant a doctor in both communities. It seemed reasonable that the government encourage a doctor to live in Dawson to supervise the hospital while being retained by the company to spend two or three days a week in Clinton Creek.[10] Such an arrangement was unsuccessfully attempted for more than a year. Clinton Creek has a young population and an active mining operation which makes the need for a resident doctor more urgent than in Dawson.

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[7] J. D. Christian, President, Cassiar Asbestos Corporation Limited, letter to F. B. Fingland, Assistant Commissioner, Whitehorse, Yukon Territory, October 19, 1966.

[8] K. G. Fleming, Assistant Commissioner, memo to Commissioner, Yukon Territory, November 16, 1966.

[9] Christian, <u>op.cit.</u>, October 19, 1966.

[10] <u>Loc. cit.</u>

Furthermore, the local women, particularly those with young children, felt that a resident doctor was essential. Consequently, Clinton Creek and Dawson both have resident medical doctors. While their skills may be underutilized, the doctors co-operate by taking each other's calls, assisting in emergencies, and providing each other with professional company.

Townsite Development

The selection of a site for the new community was based on engineering and aesthetic criteria. It was felt that the town should be close enough to the mine to keep workers' travel time to a minimum (usually twenty or thirty minutes one way), and far enough removed to avoid the unpleasantness of excessive noise and blowing dust. A southern exposure was sought where ground conditions, permafrost, vegetative cover, and drainage would not present insurmountable problems. It was essential that an adequate and dependable source of water be located nearby. Finally, a site was desired that would have scenic value and be generally pleasant (Figure 16).

The site selected in 1966 meets the criteria. The community is bounded by the Fortymile River on two sides. On the south the homes of the executives, the doctor, and the guest house overlook the Fortymile River. On the east the land slopes more gently to the river. As the higher ground is encountered to the west, the slope steepens considerably. To the north, the land slopes gradually to the Clinton Creek

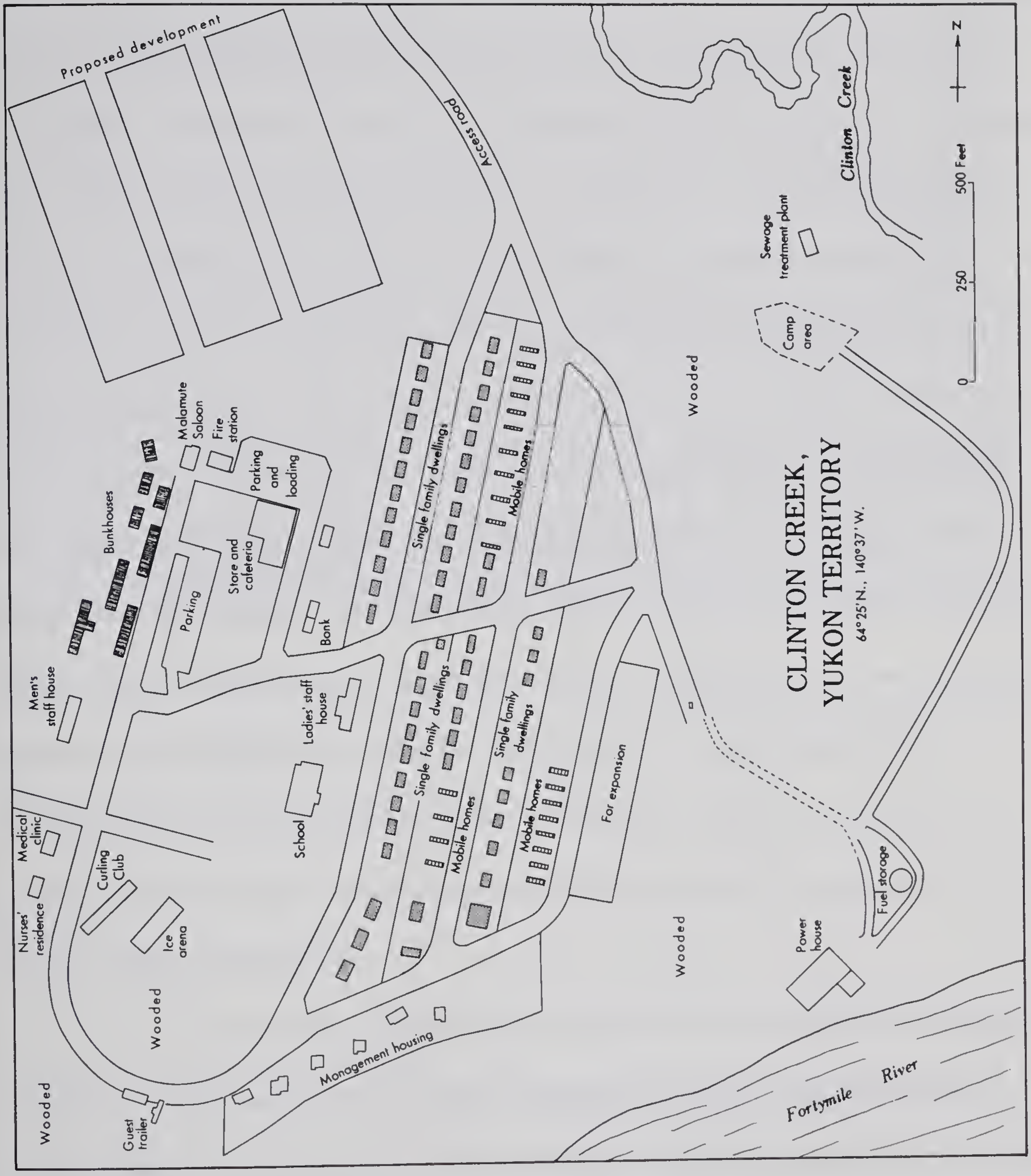
CLINTON CREEK,
YUKON TERRITORY
64°25'N., 140°37'W.
Proposed development
Access road
Clinton Creek
Sewage treatment plant
Camp area
Wooded
Malamute Saloon
Fire station
Parking and loading
Bunkhouses
Store and cafeteria
Parking
Bank
Men's staff house
Ladies' staff house
Single family dwellings
Mobile homes
Single family dwellings
Mobile homes
Single family dwellings
Mobile homes
For expansion
School
Medical clinic
Nurses' residence
Curling Club
Ice arena
Wooded
Wooded
Guest trailer
Management housing
Wooded
Power house
Fuel storage
Fortymile River
0
250
500 Feet
N

Figure 16.

and the main access road beyond.

The slope of the land has influenced the location of the various functional elements of the community. In the western portion of the community the gentle sloping land is occupied by the larger buildings. Central to this area, and a focus for the entire community, is a large structure which contains a cafeteria, a modern general store, Post Office, meeting rooms, snack bar, and a games area. To the north and west of this building are nine small bunkhouses and the Malamute Saloon. The bank, school, ice arena, curling rink, ladies' staff house, and recreation field are situated to the south and east. As the slope steepens to the east, the land is effectively utilized for individual dwellings. Farther downslope on the bank of the Fortymile River is the powerhouse, bulk fuel tanks, pumphouse, sewage disposal plant, and cleared area that is reserved for contractors who occasionally do work for the mine. Distance and trees effectively shield the town from this comparatively unattractive area and the noise of the power generator.

The various land uses of the town are confined to distinct sectors. The main access road branches into three streets as it approaches the community. The heavier traffic destined for the store, cafeteria, or bunkhouse area is, unfortunately, funneled through the residential area. However, traffic is generally light and most employees are bussed to their jobs so that through traffic is not

Plate 4. Clinton Creek and the Fortymile River. The cleared strip to the north and west is a firebreak. The Fortymile River enters at the top of the photograph from the southwest. (November 28, 1971).

excessive. Engineering considerations account for the pattern of the streets, which are generally parallel and at right angles to the contours.

Buried alongside the gravel-covered streets are the utility lines. The steam, steam-return, water, and some electrical lines are contained in a forty-seven inch diameter pipe salvaged from the local area. Originally the pipe had been brought to the Yukon by Guggenheim interests to transport water from the Ogilvie Mountains to the placer workings in Klondike Creek.[11]

The uninsulated pipe is laid in compacted gravel and welded into long sections which pass through lenses of high ice-content permafrost. If the permafrost retreats and bearing strength is lost, it is expected that the pipe will remain intact, supported by the gravel base and its rigidity. Heating tape encases the water lines where they enter the buildings. The sewer lines are separate and consist of asbestos-cement pipe laid at depths of six feet or more on a gravel base. Construction of utility lines occurred only during dry weather so that the excavations would remain dry and ice-free.

All buildings in the townsite are on piles. Holes are drilled to a depth of twenty-one feet. Pressure-treated cedar piles with a minimum diameter of eight inches are placed and the holes are backfilled with frozen material for the first fourteen feet, followed by sand.

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[11] John G. Drewe, "Construction Problems at Clinton Creek," Western Miner (September 1969), p. 23.

Plate 5. The utilidor at Clinton Creek. The photograph is taken toward the east and the valley of the Fortymile River can be seen in the distance. (July 1970).

Plate 6. Piles "freezing in" before house construction. Note how many trees have been retained. (July 1970).

The posts are allowed to freeze in for a year before a building is constructed on top of them. The space between the building and the ground is covered with "skirt" so that the structure has a finished appearance. Nevertheless, the elevated buildings are distinctive.

Most of the bunkhouses are two-story frame buildings with forty single rooms. The exterior walls of the bunkhouses are divided into fifteen-foot vertical sections, each a different color. The bunkhouses are quite closely spaced and tend to have a cluttered appearance which is heightened by the parking lots around them. These lots contain a variety of vehicles: pick-up trucks, converted busses, automobiles, and snowmobiles. Many are often undergoing repairs. This ugly scene detracts from the structure containing the cafeteria and recreation center. While this building is plainly functional, it is colorful and attractively set among a rather dense grove of spruce.

The homes in Clinton Creek are typically prefabricated. Most of the dwellings were constructed in two sections and hauled over the Alaska Highway from Alberta to Clinton Creek where they were bolted together. These modest, but attractive, houses are similar to what would be found in any suburban North American community, except they lack basements. They contain three bedrooms, living room, dining room, bath, and adjacent to the kitchen, a utility room leading to the back door. The houses have some features which are essential to comfort in a colder climate. Insulation is heavier on the floors and ceilings.

Through the front door one enters a small enclosed hall which acts as a cold air trap. The eaves are lined with ventilators which allow air to circulate and prevent the accumulation of condensation and ice between the walls and beneath the roof. Plumbing fixtures are located on inside walls to avoid freezing.

Though not an engineering response to permafrost and cold weather, the houses are painted a variety of colors. To some people this has given the community an artificial appearance similar to toy houses. However, based on experience, Cassiar officials felt that a variety of color would tend to brighten a landscape which is relatively dark and snow-covered for much of the year.

There are two simulated-log houses in Clinton Creek. This type of house is popular with some people and seems to blend well into the environment. In Clinton Creek this type of dwelling has had difficulties. It is felt that the dryness in the northwestern Yukon causes excessive shrinkage of the wood, resulting in ill-fitting doors and window frames, and a substantial heat loss.[12] In addition, some people find the dark interiors unattractive.

The homes of the executives overlook the Fortymile River. These two-story homes are larger and painted less brightly than the one-story homes. They are comfortable, well-equipped, and similar

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[12] Drewe, <u>op.cit.</u>, November 23, 1971.

to what one would expect to find further south.

One house has been designed and built in Clinton Creek. It is a large frame dwelling constructed by the company essentially as an experiment. The company was interested in determining the exact cost of erecting a house on the site and the effectiveness of new insulating materials and techniques.

On the street farther down the slope are lots designed to accommodate mobile homes, which have proven popular with the employees. Because it is felt that they detract from the more conventional dwellings, they are not integrated through the town.

Houses are provided for staff at very nominal rents. Hourly wage personnel must purchase their homes by arrangements with the company, which agrees to buy them back at termination. Hourly wage personnel also have the opportunity of building their own home with company assistance. The company erects the frame and connects the plumbing, while the owner is responsible for finishing the dwelling. It is hoped that such a plan would encourage pride in ownership and allow the builder to erect a dwelling more to his liking than the mass-produced prefabricated house.

Most of the house lots in Clinton Creek measure 60 feet by 105 feet, whereas the suggested territorial lot size is 75 feet by

Plate 7. Typical housing in Clinton Creek. The houses to the right and left are prefabricated. The unfinished house in the center has been roughed in by the company and is being completed by the employee-owner. (July 1970).

Plate 8. Home of the General Superintendent. (July 1970).

100 feet.[13] The narrower lot was essential because of the limited area at the site which was considered suitable for development.

One of the most attractive features of the community is the presence of trees. Excessive cutting of trees was avoided during the construction phase, and today a tree may not be destroyed without company permission. The spruce and aspen trees give the community a settled appearance, avoiding the barrenness that often accompanies a new community or subdivision. Also, the shade from the trees and the accumulated organic matter beneath them help to maintain the permafrost.

The facilities found in Clinton Creek are similar to what is found in most single-enterprise communities. There is a wide variety of social and athletic-oriented organizations. Many of the activities and clubs are sponsored by the Clinton Creek Community Club. Much of the cold weather activity is focused on the heated curling rink, with its four sheets of ice and commodious social room, and the recently constructed enclosed ice arena. The company contributes to and encourages the erection of such facilities with residents' participation. It also urges members to be responsible for the management of their organization and activities. The curling club and skating

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[13] Ken Baker, Territorial Engineer, memo to the Director of Housing and Municipal Development, Whitehorse, Yukon Territory, October 13, 1966.

arena have been built by volunteer labor.

Clinton Creek is served by radio and television. The Whitehorse radio affiliate of the Canadian Broadcasting Corporation is relayed to Clinton Creek. During the winter, radio reception is much improved, and Alaska stations are popular. Television viewing is limited to four hours each evening, commencing at 7:00 p.m. The transmission takes place at Clinton Creek from pre-recorded tapes of shows previously televised on the southern network. When the programs reach Clinton Creek, they are at least three weeks old. This "Frontier Package" from the C.B.C. has been criticized in Clinton Creek because of its mediocrity and complete exclusion of sporting events, especially hockey.[14]

Miners' Cash'n Carry, the company store, does not fit the stereotype of a company store. It is large, well-lighted, and attractive. It has two portions: a small version of a city food store and a clothing store. The food store has a wide variety of groceries and produce. Management attempts to offer a selection of food that would be comparable to the large supermarkets of Edmonton or Vancouver.[15] The store is operated on a non-profit basis and most items are offered below Vancouver prices. Some items are subsidized more

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[14] Whitehorse Star, November 15, 1971.

[15] Personal communication with I. Campbell, Retail Store Supervisor, Clinton Creek, Yukon Territory, November 26, 1971.

than others, particularly dairy products and meat. It has been found that the women are particularly sensitive to high prices on these items which are essential to their family's diet. Canned goods, because of their weight and higher transportation charge, tend to cost slightly more than they would in the south. Generally, the store charges customers the wholesale rate plus freight costs.

Food for the cafeteria and store is purchased either from Edmonton or Vancouver. From Edmonton the shipments consist of produce and dairy products. The freight charge is approximately $.10 per pound, but the travel time is short. Freight from Vancouver via The White Pass and Yukon Route Railway is $.05 per pound, but takes two to three weeks for an order to arrive. Management has done much to discourage the company store stigma. In spite of their efforts, the store is a frequent target for criticism.

Short walking trips and picnicing are popular pastimes in Clinton Creek. Such excursions are appealing because of the attractiveness of the area. The Lions Club has cleared and equipped a picnic area on the bank of the river and prepared a small beach where children can safely enjoy the water. At the confluence of the Fortymile and Yukon Rivers is the abandoned settlement of Forty Mile.[16] Despite

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[16] Pierre Berton, "Fortymile: American Outpost in the Canadian North," University of Toronto Quarterly, Vol. 27, No. 4, (July 1958), p. 413-423.

Plate 9. This building, in the parklike setting, houses the cafeteria, store, Post Office, and snack bar. Note the supporting piles. (July 1970).

the insects, the former settlement is a popular place in the summer with picnicers and work parties that are restoring and maintaining some of the buildings that remain. Four of the original log cabins have serviceable stoves, making the site appealing even in winter.

The company and the Fortymile (sic) Historical Society at Clinton Creek are encouraging people to visit and enjoy the abandoned settlement.[17] The company feels that this promotion will instill a greater sense of history and appreciation for the local area. In turn, it is hoped that a broader perspective will reduce feelings of isolation and remoteness that are common in the North. In this vein, residents are encouraged to participate in the Discovery Days celebration that takes place in Dawson in mid-August. This event commemorates the gold discovery that resulted in the Klondike Gold Rush. Other evidence of previous settlements are the site of Fort Cudahy on the far bank of the Yukon River (established by the North-West Mounted Police in 1895) and the cleared pasture site immediately upslope from the bunkhouses in Clinton Creek.

Clinton Creek has several distinguishing features. Like many single-enterprise communities, it is isolated, but the residents' life style is little different than it would be in any other community. Secondly, it is apparent that there has been an effort to make the

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[17] Meg McCall, "A Walk to Fortymile," The Alaska Journal, Vol. 1, No. 4, (Autumn 1971), p. 2.

community an attractive place in which to live. The layout has been planned to effectively separate conflicting functions within the town and scenic areas have not been destroyed. When possible, dwellings have been situated so that the river or the distant Ogilvie Mountains can be seen. The "snob hill" or "executive row" common to company towns is present in Clinton Creek. However, the most distinctive characteristic of company towns, evidence of their base industry, is not apparent, nor can it be observed from the community. The mine and mill are located six miles from the townsite up Clinton Creek valley. In summer, the seven-story mill (102 feet high), the highest building in the Yukon, and the huge white waste heap are visible for ten miles as one travels on the access road that services the town and the mining operation.

It seems clear that the management of Cassiar Asbestos Corporation Limited were sensitive to the needs of Clinton Creek residents when planning and erecting the physical aspects of the community. However, the company is not satisified with the small degree of community participation in local activities and townsite operation. A town administrator has been hired to act as the company's agent in the community. The creation of such a post has removed the day-to-day burden of townsite management from local company executives. The town administrator has his office in the townsite.

The president of Cassiar Asbestos Corporation Limited has

encouraged the organization of a Clinton Creek Advisory Committee. He feels that

> one of the major problems in these small towns is to find a sufficient number of people with the ability and willingness to participate in the management of a townsite.[18]

The creation of a community advisory committee is an effort to provide the vehicle which would encourage such involvement. It is hoped that eventually some structure will evolve whereby the residents can feel they are participating by taking over certain areas of expenditure and maintenance. Mr. Christian feels that "if we can get people involved then we will have a happier community."[19]

To initiate the activities of the advisory committee, the company provided a grant of $10,000.00. The town administrator felt that the committee should consist of six regular members drawn from community groups: recreation community services, health, education, library services, special projects, and the town administrator as an ex-officio member. The Territorial Government and the town administrator have discussed the formation of such a group and it is envisioned that the advisory committee could establish liaison with the government over matters of common interest.[20] The hiring of a town administrator,

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[18] Christian, op.cit., January 28, 1972.

[19] Loc. cit.

[20] R. G. Loewen, Municipal Inspector, Yukon Territorial Government, memo to the Director, Department of Local Government, Whitehorse, Yukon Territory, October 20, 1971.

formation of a community club, and the creation of an advisory committee are attempts to shift some of the responsibility of community living from the company to the residents. Such developments should help to eliminate some of the friction inherent in company towns.

At the end of 1968 the total capital outlay for the Clinton Creek operation amounted to $26,000,000.00.[21] Of this sum, approximately $5,500,000.00 was expended on the townsite. Since the initial construction, houses and other amenities have been added to the townsite. As of 1971 there were fifty-eight houses and nineteen mobile homes in Clinton Creek. A flat area immediately north of the community has been designated for the eventual expansion of the townsite. It is proposed that seventy-two houses can be accommodated on the site. It has not been determined when the plot will be developed. If housing for additional labor is required quickly, it may be expedient to utilize the area for supplementary bunkhouses.

Population

Approximately 550 people reside in Clinton Creek: 70 families with 130 children accommodated in single-family dwellings, and 270

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[21] Cassiar Asbestos Corporation Limited, "Clinton Creek." (Mimeographed *circa* 1969).

people living in bunkhouses and single staff houses. Children attend kindergarten through grade eight in the community, but most go outside the Yukon to complete their education. Approximately seventy-five pupils are enrolled in the local school.

As of November 1971, there were 352 people employed by Cassiar Asbestos Corporation Limited in their open pit mine and mill at Clinton Creek. Of this number, 255 were hourly personnel representing twenty-eight different national origins (Figure 17). Almost half of the workers indicated Canada as their place of birth.

Although operations began in April 1968, it can be seen in Figure 18 that the vast majority of the hourly-rated employees, 90 per cent, joined the company since January 1970. Those hired during the first ten months of 1971 represented 65 per cent of the hourly-rated work force. These figures reflect the high rate of labor turnover indicated in Table 8.

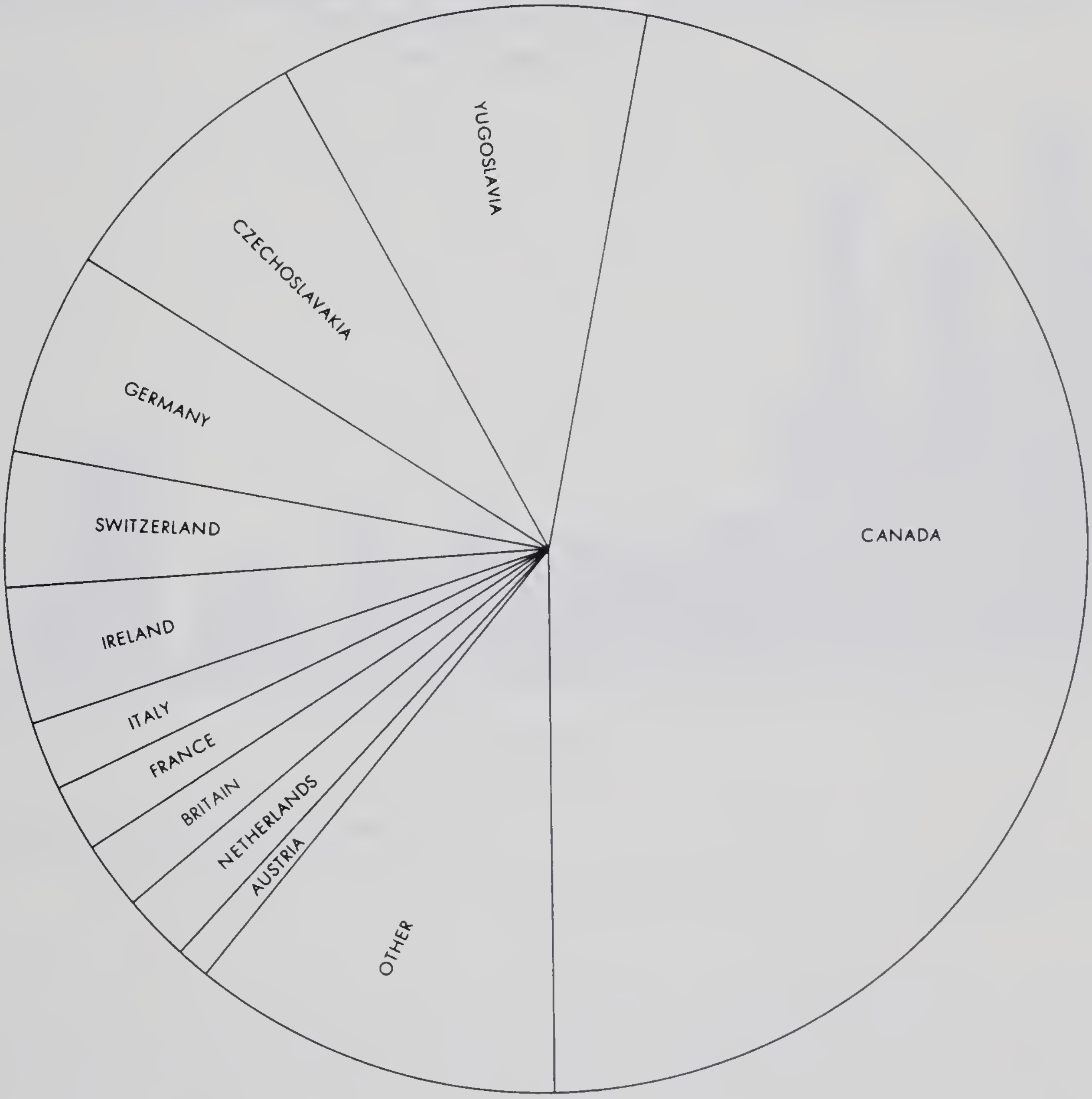
TABLE 8

EMPLOYMENT CHARACTERISTICS OF HOURLY PERSONNEL
CLINTON CREEK -- CASSIAR ASBESTOS CORPORATION LIMITED
1968-1970

	1968	1969	1970
Average Yearly Payroll	186	220	255
Hirings	499	361	356
Separations	469	370	328

Source: Company records.

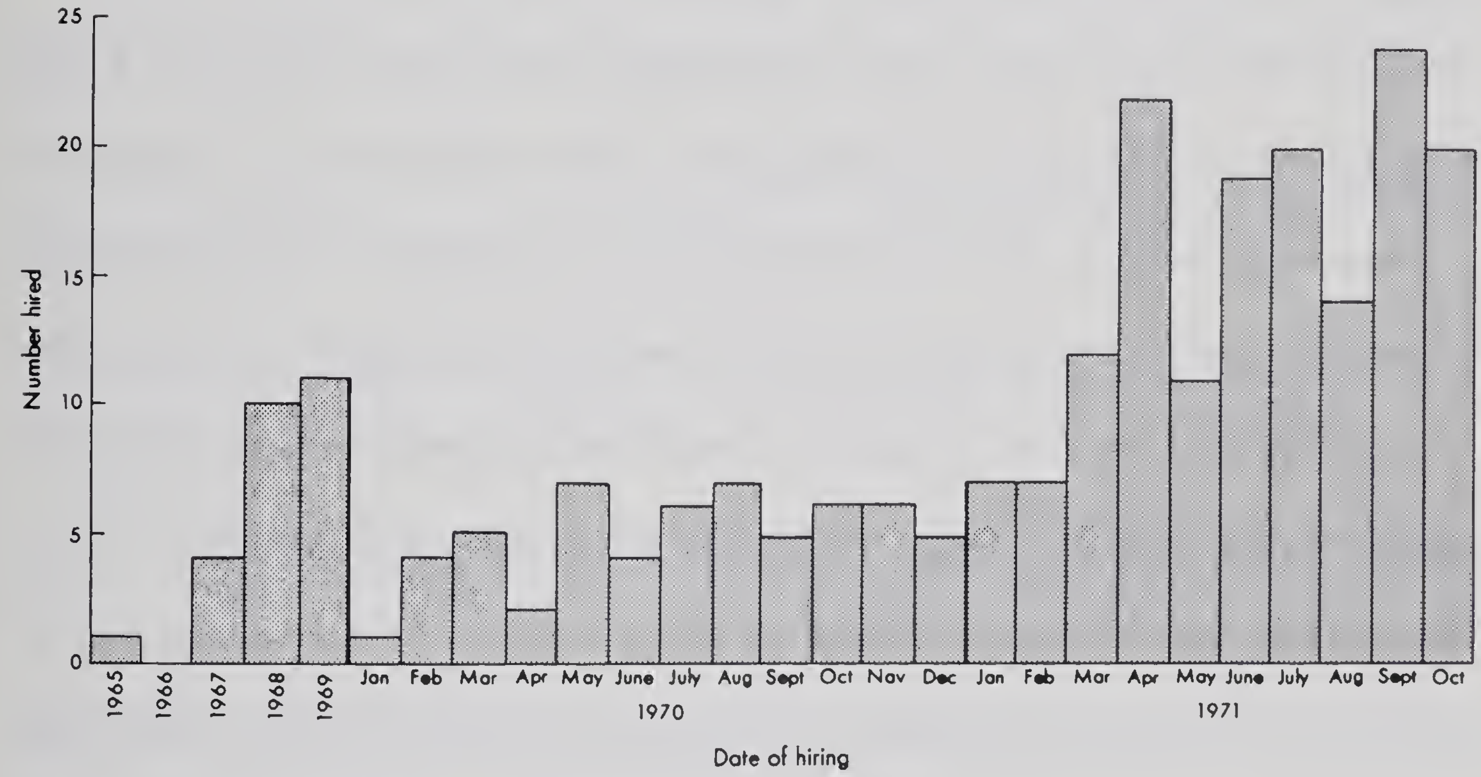
COUNTRY OF ORIGIN OF HOURLY STATUS EMPLOYEES
CASSIAR ASBESTOS CORPORATION
CLINTON CREEK, YUKON TERRITORY
November 15, 1971



Source: Cassiar Asbestos Corporation Limited Seniority List November 15, 1971

Figure 17.

HOURLY RATED EMPLOYEES PRESENTLY WORKING FOR CASSIAR ASBESTOS CORPORATION LIMITED
CLINTON CREEK, YUKON TERRITORY
1965 - October 1971



Source: Cassiar Asbestos Corporation Limited Seniority List November 15, 1971

Figure 18.

The turnover rate, 200 per cent in 1968, had decreased to 140 per cent by 1970. This high rate was anticipated by the management. It was felt that since the majority of workers were new to the job and the area, there would be a considerable number of problems resulting from their displacement. To provide some stability in the labor force, many key positions were filled by Cassiar employees from their asbestos mine and mill at Cassiar, British Columbia. It is hoped that 5 to 10 per cent of those hired each year will remain and that after ten years a "reasonably stable, responsible community will develop."[22] Little seasonal variations in the turnover rates have been observed, but there is a tendency for some stability during the winter. Within the employment ranks the turnover is greatest in the lower-paying jobs.[23] The turnover rate is estimated to be only 30 per cent for those hourly personnel who have a house in Clinton Creek.[24] The personnel supervisor indicated that the erection of additional houses would reduce the turnover rate almost immediately.[25]

The government has been a participant in the development of

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[22] J. D. Christian, "Urbanization," Essays on Mid-Canada, Mid-Canada Development Foundation, Inc. (Toronto: 1970), p. 210.

[23] Personal communication with Linda Stevens, Personnel Director, Cassiar Asbestos Corporation Limited, Clinton Creek, Yukon Territory, November 27, 1971.

[24] Personal communication with Frank Buckley, Townsite Administrator, Clinton Creek, Y.T., November 26, 1971.

[25] Stevens, op. cit.

the Clinton Creek operation. After the size and the quality of the ore body was proven in 1965, the government was asked to assist in the improvement and extension of the transportation network so that development might commence. During 1965-1966, the Federal Government assisted in three specific areas. To accommodate the increased volume and weight of anticipated traffic, the Sixtymile Road linking Dawson to the Alaska Highway was reconstructed from Dawson to Mile 34. The cost of this project, $1,700,000.00, was borne by the government. An access road from Mile 34 to the mine site and bridge over the Fortymile River were constructed at a cost of $1,100,000.00. The government and the company shared the cost of these projects, the latter paying one-third of the cost.[26]

The government deferred a decision on the construction of a bridge over the Yukon River at Dawson. This action was not felt to be unreasonable by the management. It was agreed that the expense of a bridge could not be justified, particularly to taxpayers, until the mining operation is a success.[27] To facilitate the increased traffic crossing the Yukon, a larger ferry was engaged and a more substantial ice bridge

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[26] F. B. Fingland, Assistant Commissioner, Yukon Territory, memo to the Commissioner, Whitehorse, Y.T., November 23, 1966.

[27] J. D. Christian, "The Development of the Clinton Creek Asbestos Deposit and Its Effect on the Yukon," Transactions, Second Yukon Northern Resource Conference, Whitehorse, Yukon Territory, (March 23, 24, 25, 1966, sponsored by Whitehorse Chamber of Commerce and Yukon Chamber of Mines), p. 152.

was designed and maintained in winter. For the periods of break-up, beginning in mid-April, and freeze-up, commencing in late October, sometimes totalling sixteen weeks, an aerial cableway capable of holding twelve tons was built across the river at Dawson. The Yukon River Skyline is designed to carry freight only. Loads of palletized asbestos fiber are exchanged for foodstuffs and equipment on opposite banks of the river. Those responsible at the town and mine for maintaining various supplies usually check their inventories carefully prior to freeze-up and break-up. Food supplies and inventories of critical industrial parts are increased prior to the use of the skyline.

In mid-October 1971 the skyline became inoperable, isolating Clinton Creek from overland contact. The Sixtymile Road west from Clinton Creek eventually joins the Alaska Highway, but is open to traffic only in the summer. To alleviate food shortages, deliver mail and other supplies, a chartered aircraft was flown to the site. Asbestos fiber was airlifted on the plane's return to Whitehorse.[28] This chartered aircraft augmented the two weekly flights that link Clinton Creek, Dawson, Mayo, and Whitehorse. The interruption of accepted transportation routes led a Clinton Creek resident to comment:

> the frustration developed in the individual at Clinton Creek lends further weight to the argument in support of a permanent bridge across the Yukon at Dawson City.[29]

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[28] Whitehorse Star, October 28, 1971.

[29] Ibid., November 15, 1971.

It has been said that the Clinton Creek mine and community are the epitome of northern Canadian mining. The town, mine, mill, and gleaming waste heap seem out of place and dwarfed by the vastness of the landscape. Even the mile-long cableway that transports ore 250 feet above the ground from the mine to the mill appears toylike from a distance. Despite these qualities, Clinton Creek has a viable mine and functioning townsite which has extended the frontier of settlement.

Resident Interviews

Of the sixty-six dwellings occupied during November 1971, thirty-five formal interviews were conducted. Fifty-one per cent of the people interviewed had lived in Clinton Creek from its inception in 1968, and twelve interviewees indicated residence of a year or less. Seventy-five per cent of the residents felt that they would be there from two to five years. Coming to Clinton Creek usually results in an immediate job promotion and the opportunity for rapid advancement. Older respondents, particularly those with grown children, felt that they would like to remain there for the rest of their working lives.

The majority (52 per cent) moved north expecting to earn and save more money than possible elsewhere. The subjects could seldom articulate why they were saving the money, but those few who had definite goals were saving for a house or a farm or to get out of debt.

These people had as their goal a specific amount of money they wanted to accumulate and they knew, almost to the day, how much longer it would take them to reach their goal. Those whose goals were less well-defined did not feel that they could save in the North and blamed the high cost of living for limiting their savings ability.

Twenty per cent moved north seeking a change in their life-style, which they felt would be more leisurely.[30] However, seventeen out of the thirty-five interviewed found that they were more active in Clinton Creek than they were in other towns where they had lived. Only two people felt they were less active in Clinton Creek than where they lived previously.

The residents (80 per cent) seemed satisfied with the physical aspects of their community and their homes. More than half (52 per cent) considered the town designed differently from others where they had lived previously. They appreciated the fact that the store and school were convenient to all homes and felt that distances were short so that they could walk regardless of the weather. Seventy-four of those interviewed found Clinton Creek more attractive and with more facilities than they had expected.

Residents were proud of some of the attractions in their new town. When asked what they would show a visitor, they most

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[30] Unless otherwise indicated, all percentages are based on thirty-five interviews which equal 100 per cent.

frequently mentioned the recently constructed ice arena, mine and mill site, and the "ghost town" of Forty Mile. Some (only 17 per cent) singled out the bunkhouse area as being unattractive and something they would avoid showing visitors.

Forty-nine per cent of the interviewees thought the houses were better or much better than they would find in a community of similar size located elsewhere. They were impressed by the newness of the homes, but complained about cold drafts and floors (ten people), small rooms (seven), and the absence of a basement (seven). However, only one-third indicated any problems with their homes. Thirty-five per cent felt that the houses were too close together. They felt one of the benefits of northern living was the enjoyment of open space and that the narrow lots crowded the homes. The lots in Clinton Creek are fifteen feet narrower than the width suggested by the government. Twenty respondents said that there were numerous little things that they did not like about their dwellings, but considering the very low rent, the problems were insignificant.

There were considerable differences expressed when residents compared their degree of involvement in activities at Clinton Creek to that in previous towns. The radio was listened to more frequently in Clinton Creek, both for incidental entertainment and specific programs, by 52 per cent of the population. This was particularly true when sporting events were broadcast. Reading was also a more popular

activity among 60 per cent of those interviewed. Books were provided locally through the services of the Territorial Library. Similarly, work occupied a greater amount of time in Clinton Creek than it did in other communities.

Activities related to entertainment were most frequently listed as something residents missed. The majority of subjects missed live entertainment (49 per cent) and spectator sports (26 per cent), restaurants and lounges (34 per cent), and shopping facilities (34 per cent). While it was clear that the Miners' Cash'n Carry and catalog purchases were adequate, the opportunity to shop was desired.

The recreation-oriented activities were mentioned when residents were asked what needed improvement. However, in a broader context, it was those activities related to transportation and communication that were most annoying to residents. The limited selection and poor quality of television and radio were indicated by more than 90 per cent. Unreliable mail service was also disturbing to the majority (52 per cent) of residents. Sixty-five per cent of the people were troubled by the roads and air transportation. The roads are dusty in summer and hazardous in winter. Travellers feared breakdowns or disabling accidents. Some residents (46 per cent) desired daily air service to Whitehorse. These reactions may have been overemphasized since the residents were interviewed when the ice bridge across the Yukon River had not been completed at Dawson and air

service had been interrupted frequently in October and November due to poor flying conditions.

Fifty-five per cent felt there was a need to expand educational facilities. Although they were pleased with the existing school (which provides education to grade nine level), they wished that high school courses could be offered locally, as well as some adult courses.

Everyone indicated feelings of isolation: a constant feeling for some (11 per cent), but for others (37 per cent) mainly felt during break-up and freeze-up. Isolation was difficult for respondents to define, but was expressed in terms of reliability and the time involved in overland transportation. To most people, the scheduled air service did not reduce the feeling of isolation, nor does the relative nearness to Dawson seem to help reduce any anxiety. Nine people who occasionally felt isolated in Clinton Creek said that they would probably have similar feelings in Whitehorse. For 40 per cent of the respondents, isolation was expressed as having to travel great distances by automobile to get to a specified place (usually in southern Canada).

Travel in summer is a popular diversion for Clinton Creek residents. Ninety per cent indicated that they plan to travel outside the Yukon each year. The destination for most is British Columbia or Alberta, followed by Saskatchewan, Manitoba, and Ontario. Over half indicated that they travel to Whitehorse at least twice a year, usually once during summer months and again in late fall for shopping. There

was little mention of frequent local travel to Dawson or west to Alaska, despite the proximity. Excursions of two or three days are common in the summer and usually once during the winter months. In summer, these trips would involve camping, hunting, or fishing trips, while in winter would relate to a meeting or sporting event. It is clear that travelling is a favorite activity. The planning of the trip, even a weekend fishing trip, and the description of it afterwards, occupied much time.

Thirty-one of the thirty-five interviewed felt that people would continue to come north to remain for short periods of time. The great majority (80 per cent) said they would not live there permanently. When asked why people other than themselves came north, over half of the people indicated such reasons as money, security, and a northern experience. Their own reason (70 per cent of the interviewees) for going north was more definite--money. Isolation was suggested (54 per cent) as the main reason for people leaving and was given as the reason they (54 per cent) expected to leave one day. A lack of privacy (20 per cent) and the climate (25 per cent) were other common reasons mentioned for leaving.

People had strong feelings regarding the concept of regional centers as a place to live while the husband was working at the mine for a few days at a time. Ninety per cent were adamantly opposed to such an idea on the basis that it would interrupt family lives. Those

unopposed to the concept thought it was worth trying. There was general agreement among all that they would enjoy living in a larger community, but only if the head of the house would commute on a daily basis. The concept of living under a dome in a controlled climate was also opposed by 70 per cent of the residents.

All but three of those interviewed felt that they lived in the North. There was little agreement about the definition or characterization of the North. Most frequently the North was described by some physical attribute: climate, scenery or an unspoiled countryside (43 per cent). Other popular characteristics mentioned by the respondents were that the North was the land of opportunity and adventure (30 per cent), sparse population (40 per cent), and a big land where distances between communities is great (34 per cent).

Summary

Clinton Creek is an attractively-situated, well-laid-out, and generally pleasant community. Management has shown itself to be progressive regarding the physical aspects of the town and in providing various amenities which, it is hoped, will reduce feelings of isolation and deprivation. In addition, management has provided the vehicle by which residents can assume some responsibility for operating the town. Management expects that the Community Advisory Committee will free the local executive from the day-to-day operation of the townsite, and

sincerely hopes that the committee will involve the residents so that they have a more enjoyable experience in Clinton Creek and the North.

Nevertheless, Clinton Creek is a company town. It is sixty-eight miles from Dawson and four hundred miles from Whitehorse. Overland transportation is halted for several weeks annually, and winter travel is frequently very hazardous. Poor weather conditions often restrict air travel. Despite its geographic location, one often feels that many aspects of life in Clinton Creek are no different than elsewhere.

CHAPTER VI

FARO

I don't live here; I only exist.

A Faro resident

Named after the ore claim, the community of Faro began to take shape in 1969 when construction was begun on the dwellings and buildings to serve the employees of Anvil Mining Corporation Limited. The ore body was discovered by a prospector, Alan Kulan, on July 2, 1952. Based in nearby Ross River, he discovered the outcrop on the advice of a local Indian who had observed mineral showings in the waters of Vangorda Creek.[1] Little was done with the claims because of the weak market for lead and zinc and the remoteness of the region. However, by 1966 the ore body had been defined and preliminary studies indicated that a viable mining operation could go into production with the successful resolution of several factors, transportation in particular. The Federal Government co-operated by rushing completion of

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[1] Personal communication with Alan Kulan, Prospector, Ross River, Yukon Territory, December 6, 1971.

approximately 120 miles of new road linking the mining operation with the territorial road system at Carmacks.[2] A contract was signed with the White Pass and Yukon Route Railway under which they would transport the concentrate from the mill to the ships at Skagway. To meet the contract, the transportation company expended $22,000,000.00 on improvement of Skagway dock facilities, on the design of containers, and for thirty-five container trucks to move the concentrate to the railhead at Whitehorse. Markets for the concentrate were secured initially in Japan and later in Germany. The decision to produce ore was made in 1967, and the first concentrates were shipped to Skagway in late 1969.

Physical Characteristics

Topographically, Faro, at an elevation of 2,450 feet, is situated in the Yukon Plateau region. Within sight of and north of the community are mountains of the Anvil Range rising to 6,700 feet. South of the community and 250 feet lower is the floor of the Pelly River Valley. The Valley and its tributaries are, at Faro, controlled by the Tintina Trench.[3] The entire region has been glaciated and, consequently, covered with till. Faro is situated on two benches cut by the

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[2] Oil and Mineral Division, Dept. of Indian Affairs and Northern Development, "Recent and Future Mineral Developments in Northern Canada," The Polar Record, Vol. 15, No. 95, (1970), p. 158.

[3] D. J. Templeman-Kluit, "Geological Setting of the Faro, Vangorda and Swim Base Metal Deposits, Y.T.," Report of Activities. Paper 68-1, Part A. Geol. Survey of Canada, Department of Energy, Mines and Resources, 1969, p. 48.

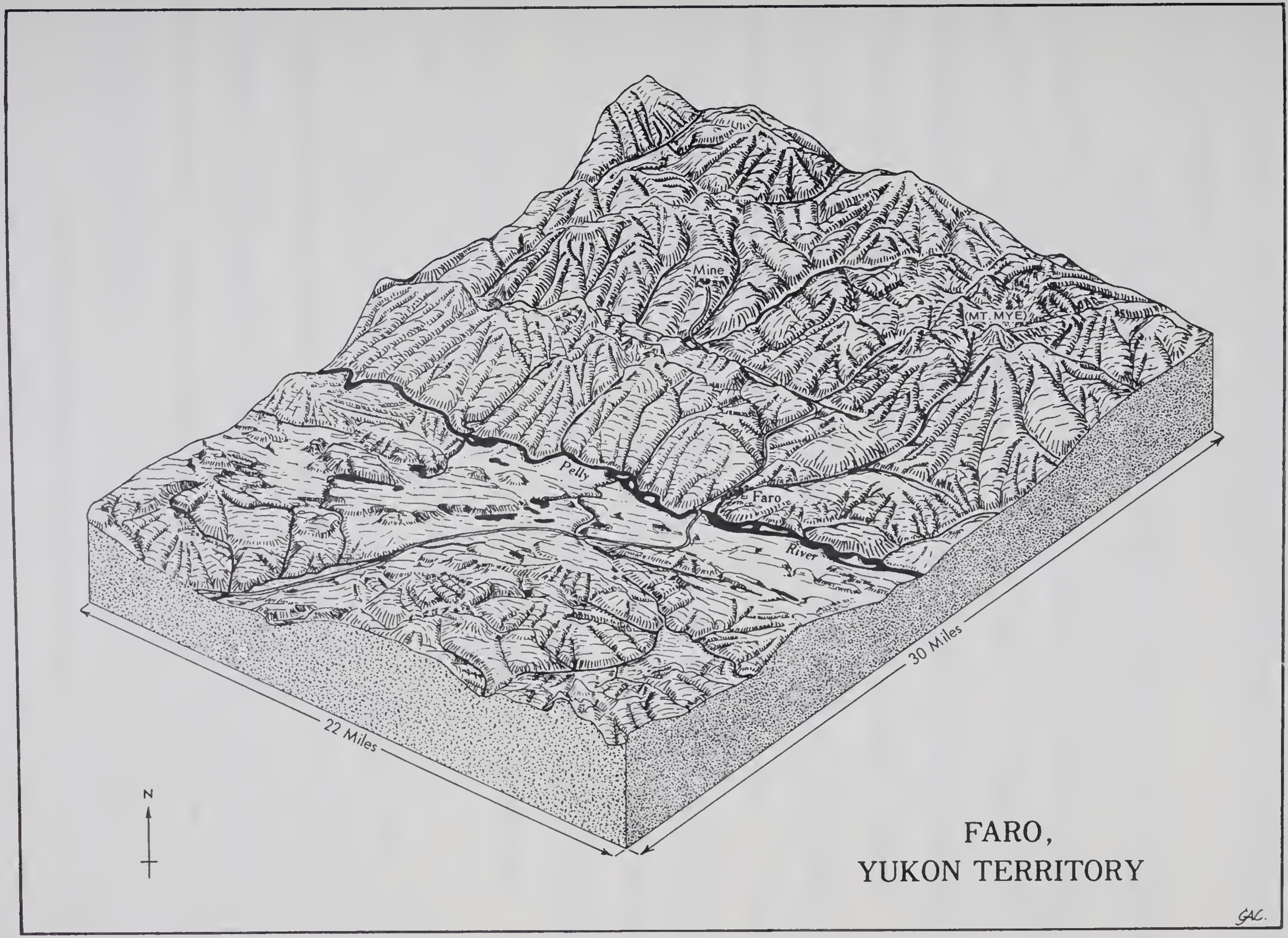
Mine
(MT. MYE)
Pelly
Faro
River
30 Miles
22 Miles
N
FARO,
YUKON TERRITORY
GAC.

Figure 19.

Pelly River during periods of post-glacial run-off. The upper and lower benches of Faro are separated by a steep sixty to seventy-five foot escarpment.

Reliable climatic data has been collected at Faro only since January 1972. Prior to this time some data was collected by survey parties, construction workers, and mill employees. These records, accumulated since 1966, indicate that the weather experienced in the Faro area is typical of the interior portions of the Yukon Plateau. On the basis of limited data it does seem that substantial temperature differences occur due to elevational controls and inversions. At the site of the mill and mine, 4,500 feet, daytime highs are usually lower than the temperatures reached in the townsite, almost 2,000 feet lower, for the same period. Similarly, nighttime lows recorded at the Pelly River bridge are lower than those experienced in the community. The temperature at the townsite is more equable.[4]

Permafrost is present everywhere in Faro. Much of the surface material is well-drained sand, resulting in a low ice content. However, some pockets of poorly drained soils do exist in and around the community, and these high ice-content areas have been avoided in Faro's development.

The natural vegetation within at least a two-mile radius of

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[4] Personal communication with H. Wahl, Director, Meteorological Branch, Ministry of Transport, Whitehorse, Yukon Territory, December 8, 1971.

Faro was almost completely destroyed by fire. Presumably started by lightning on June 13, 1969, the fire also destroyed the portions of the town that had been constructed at that time. Prior to the fire the vegetation consisted of white spruce (Picea glauca) and black spruce (Picea mariana). The balsam poplar (Populus balsamifera) on the river bars and flats was untouched. Timber line is approximately 5,000 feet. Generally, the Faro area is marred by blackened and jagged trees and stumps which litter the landscape. The ugliness is softened somewhat by the fireweed (Epilobium angustifolium) which brightens the area in summer and the occasional small clumps of spruce which survived the fire. Apparently fires are common in the Pelly area.[5] In the immediate vicinity of the townsite and along access roads a clearing and replanting program has been initiated.

The Human Scene

Occidental man moved relatively early into the Valley of the Pelly. Robert Campbell explored the area in 1843 and was impressed by the game he saw and the potential for fur harvest.[6] For a short time a Hudson's Bay Company trading post was established where the Pelly

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[5] J. R. Johnston, A Reconnaissance of Pelly River Between MacMillan River and Hoole Canyon. Yukon, Memoir 200, Geol. Surv. (1938), p. 3.

[6] Clifford Wilson, Campbell of the Yukon. (Toronto: Macmillan of Canada, 1970), p. 71.

joins the Yukon River. The post was abandoned in 1852. It seems that the Valley was virtually ignored until G. M. Dawson of the Geological Survey mapped the river in 1887. Since that time there has been sporadic interest but unspectacular results in mining gold. Following Dawson, only occasional interest was shown by the Geological Survey in the Valley. The reconnaissance made by Johnston in 1935 was very superficial and emphasized the virgin nature of the country. An isolated flurry of activity occurred in 1942 when the Canol Pipeline and Road crossed the Pelly at the community of Ross River. The trading function of Ross River remained. As the community became accessible by road, it provided a base for exploration parties working in that region. The community retains these functions today. A few of the indigenous people of the area still have their fish camps along the river and some of the older people still remember their first sight of European man.[7] The character of the region changed suddenly when ground was broken at Faro in 1968.

Townsite Planning

In July 1967 preliminary agreement was reached between the Territorial Government, Anvil Mining Corporation Limited, and various federal agencies about the development of a townsite. It was

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[7] Personal communication with J. Ladue, Pelly River Bridge, Yukon Territory, December 4, 1971.

agreed in principle that the company would act as prime contractor for the Territory and

> will engage a consultant to choose a site and prepare a town plan and do preliminary engineering, as well as to call tenders for the construction of sewer, water and roads. On completion, the townsite will be turned over to the territorial government as an open town.[8]

In August 1967 the co-ordinating committee for Anvil Townsite Planning was established by the Commissioner of the Yukon Territory. It would be the function of the committee to meet periodically and plan for the efficient implementation of the required government services into the community.[9]

The decision for an open town was made by the company even before the mine was planned.[10] This decision was made

> primarily to avoid the stigma that exists in company controlled towns. It was felt that the people would have a better attitude and the environment would be more pleasant and acceptable if the town were open and the residents controlling it themselves.[11]

Further, it was felt by the company that it would be no more

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[8] F. B. Fingland, Assistant Commissioner, Yukon Territory, letter to the Territorial Treasurer, Whitehorse, Yukon Territory, July 21, 1967.

[9] Ray Howe, Municipal Planning Engineer, Minutes of the Co-ordinating Committee for Anvil Townsite Planning, Whitehorse, Yukon Territory, August 29, 1967.

[10] R. E. Thurmond, Senior Vice-President, Anvil Mining Corporation Limited, letter to J. Smith, Whitehorse, Yukon Territory, July 26, 1967.

[11] Idem, personal communication, Vancouver, British Columbia, February 2, 1972.

costly being affiliated with an open town than it would be with a closed company town. Benefits might accrue indirectly to Anvil with a reduced labor turnover.

While townsite planning and ore feasibility studies were being conducted, the Territorial Government deliberated over the fate of Ross River, only forty miles via road from the proposed town of Faro. It was pointed out that the facilities at Ross River were minimal: grade school, road maintenance camp, Post Office, forestry office, welfare office, airport, health center, two trading posts, stores, restaurants, and service stations. It was concluded that the two communities would duplicate some services and facilities, but considering the demand and distance, such duplication was necessary though not economically desirable.[12] Further, it was felt that the native population of Ross River would continue to grow. The opportunity for growth at Ross River was favorable since it is situated at the junction of the Robert Campbell Highway, linking Watson Lake and Carmacks, and the Canol Road. The existence of the airport would continue to encourage exploration parties to use the community as a base.

The timing of the erection of the new single-enterprise community caused some consternation amongst the government. It desired an open town; however, it was clear that in the initial stages occupancy

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[12] Howe, op. cit.

of the town would be almost entirely Anvil employees and,

> since the town will not be required if Anvil were not developing a mine, the need for this town depends on when the company will actually require the town for its employees.[13]

Thus the government did not wish to construct a town that was not in step with the developing mine and mill. For this reason it seemed wise to let the company develop the town at its pace, using government guidelines. As the town was occupied and functioning, the company would remain as the developer and landlord, but the works and properties would be retained by the Territory and, eventually, the village of Faro.[14]

Site Development

The general area for the site of Faro was determined by the ore body. From the standpoint of the company, it was desirable to have the town somewhat removed from the industrial activity, but not so far that commuting would be difficult or time-consuming. From the standpoint of the Territorial Government, it was important to have the town near the junction of the Robert Campbell Highway and the mine access

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[13] F. B. Fingland, Assistant Commissioner, Yukon Territory, memo to the Commissioner, Yukon Territory, November 27, 1967.

[14] Agreement between: Anvil Mining Corporation Limited and the Commissioner of the Yukon Territory, March 14, 1968; and Agreement between: Anvil Mining Corporation Limited and the Commissioner of the Yukon Territory and the Village of Faro, April 1971.

road. A planning firm retained by the company was to recommend a site that had attractive aesthetic and environmental conditions. The broad constraints of the company and the government placed the site somewhere along the mine access road between the mine and the main highway. It was the task of the planners to recommend the best site along such a corridor. The company set terms of reference for the planning concern: to consider the location and development of a townsite to house an ultimate population of 750 base employees and their families, together with the necessary service and government employees. The ultimate population is based on the assumption that Anvil's initial requirements for 250 employees will be trebled when at least one other mining concern becomes active in the area and/or a smelter is established nearby. Further, it was specified that a building program be designed so that construction could be completed by September 1969 and an environment created at all stages of development that would attract employees to settle. The last term of reference was to allow for the town to become a properly functioning local government within the legal structure of the Territory as soon as practicable.[15]

Within these terms of reference, the planners established criteria to aid in site selection. Environmental aspects were the first

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[15] Thompson, Berwick, Pratt, and Partners. Anvil Mining Corp. Ltd., Townsite Location and Development Study for the Territorial Government of the Yukon in Association with Anvil Mining Corp. Ltd., Vancouver, British Columbia, (November 1967), p. 3.

consideration and included: selecting a south-facing slope, distant views to alleviate feelings of isolation and containment, and an elevation above the colder valleys and below the higher mountain slopes. The planners suggested that the site should be at least 250 acres, relatively level, free from high ice-content permafrost, and with compact building parcels to minimize the length of utility lines. To avoid lengthy travel time, the distance from the mine and mill should not be greater than fifteen miles. The town should be close enough to the Robert Campbell Highway to attract tourists, thus broadening the economic base of the community; to give the inhabitants a feeling of proximity to the highway and their main access to the outside world; and to overcome the possibility of commercial development on the highway. Finally, the site should have ready access to power and water supply and to an air-strip.

During late summer of 1967, aerial photographs and topographic maps were utilized to determine those areas which met criteria for aspect, elevation, slope, drainage, and accessibility. From this remote examination five sites were selected for field investigation. After a series of helicopter flights over all areas, one site was clearly unacceptable, leaving four sites worthy for further examination. For four or five days during October and early November, a temporary camp was erected at each site. Rapid investigation was made regarding the distribution and character of permafrost, the bearing capacity of the

soils, and estimates were made of the character of the local climate, the general attractiveness of the immediate area, and the scenery from various points. From the rapid but systematic research, the various criteria of each site were ranked so that comparisons could be made. When the profiles were completed, one site ranked well above the others.[16]

On December 28, 1967, the site recommended by the planning concern was selected by authorities of Anvil Mining Corporation Limited, Yukon Territorial Government, and Department of Indian Affairs and Northern Development.[17] The site for Faro was well situated relative to the mine access road and the Robert Campbell Highway. Adequate quantities of potable water were discovered in gravels adjacent to the Pelly River. Power for the mine and community is supplied by the Northern Canada Power Commission from the installation at Whitehorse. The main disadvantage of the site is the escarpment which effectively separates Faro into the upper and lower bench, and the ill-drained land and high ice-content permafrost which is found in patches throughout the site. The less desirable land has been avoided so that the community is further fragmented.

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[16] N. A. Lawrence, President, Associated Engineering Services Limited, letter to Thompson, Berwick, Pratt and Partners, Vancouver, British Columbia, November 14, 1967.

[17] Minutes of meeting of representatives of the Anvil Mining Corp. Ltd., Yukon Territory Administrator, Dept. of Indian Affairs and Northern Development, Vancouver, British Columbia, December 28, 1967.

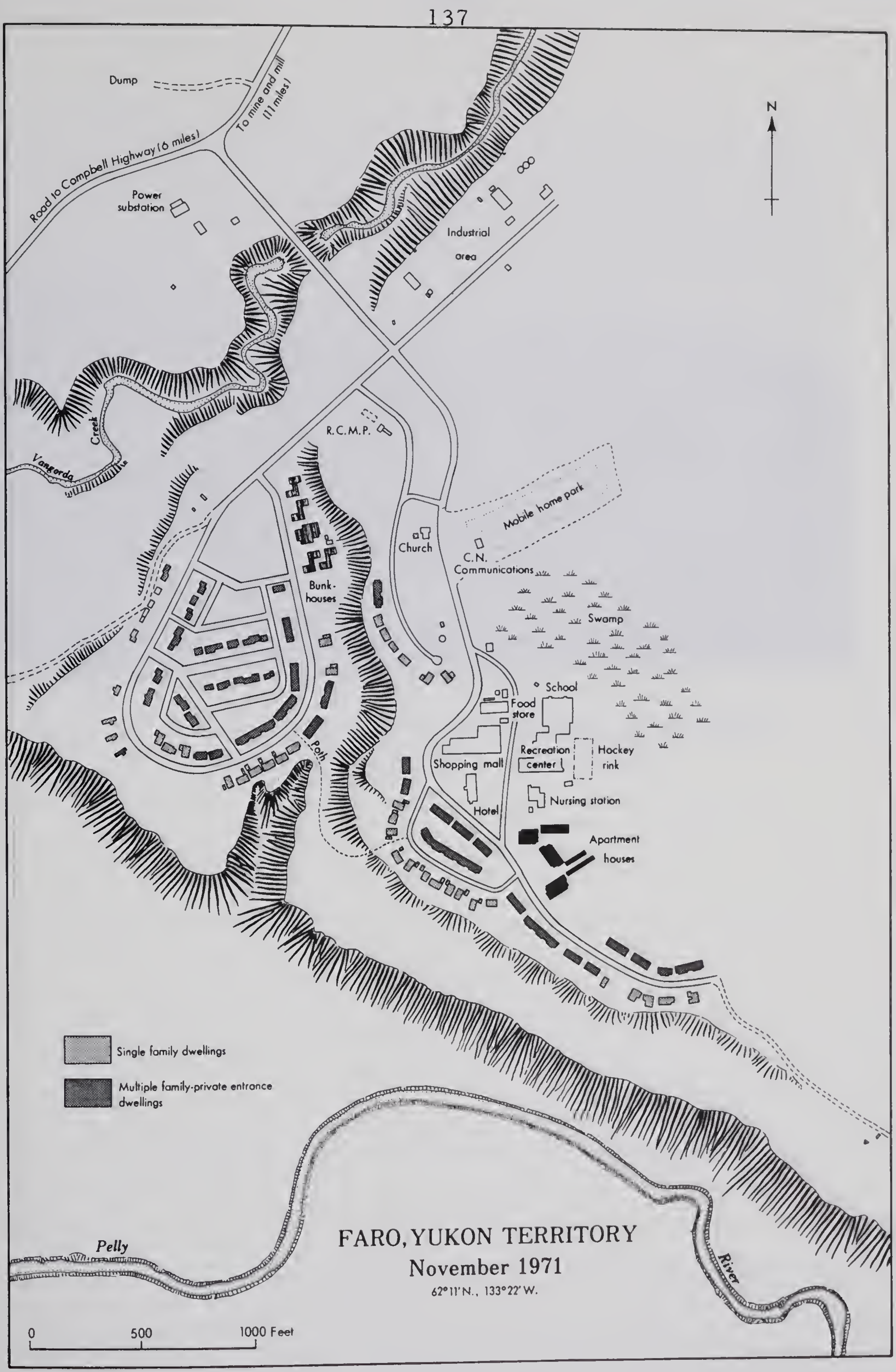
Dump
To mine and mill (11 miles)
Road to Campbell Highway (6 miles)
Power substation
N
Industrial area
Vangorda Creek
R.C.M.P.
Mobile home park
Church
C.N. Communications
Bunk-houses
Swamp
School
Food store
Recreation center
Hockey rink
Shopping mall
Hotel
Nursing station
Apartment houses
Path
Single family dwellings
Multiple family-private entrance dwellings
Pelly
River
FARO, YUKON TERRITORY
November 1971
62°11'N., 133°22'W.
0
500
1000 Feet

Figure 20.

Plate 10. Looking northeast at the dwellings on the upper and lower bench at Faro. (July 1970).

The Townsite

Site clearing and preparation began in the summer of 1968. The higher, better land which commanded a view of the river valley was designated for housing. The less desirable land was planned for the buildings that would eventually comprise the town center, the commercial, service, and administrative area, hotel, school (offering instruction through grade ten), and recreation center. In preparation for construction, attempts were made to drain these poorer lands, remove the vegetative cover, and fill the areas with coarse gravels. The installation of utilities, roads, and general grading and townsite layout were completed by mid-summer 1969. Work was progressing on the erection of dwellings when the fire of June 13 wiped out much of the construction. The cost of the destruction was estimated to be $700,000.00.[18] After the fire, the question arose whether to rebuild on the same site since it was primarily for aesthetic values that it was chosen. The decision to proceed with construction on the existing townsite was virtually inevitable since any change would result in a one or two-year delay in construction of the facilities. A program of land clearing and replanting was instituted and the process of rebuilding began.

The initial phase of home construction was rapidly completed

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[18] J. Smith, Commissioner, Yukon Territory, memo to the Assistant Commissioner, Whitehorse, Yukon Territory, June 20, 1969.

by November and December 1969, at which time entire families moved to Faro. The town center was evolving with the completion of a nursing station, recreation center, and school. A variety of accommodations were constructed on the upper and lower benches. Temporary buildings, construction shacks, and trailer units served as a bank, Post Office, and general store. Three three-story fifteen-unit apartment buildings were erected near the town center. Thirteen maisonettes were located at various places in the community with the largest concentration nearer the community center. These units have individual entrances with a garage and utility room on the ground floor, living area on the second floor, and two or three bedrooms and a bath on the top floor. Townhouses with two to six connecting units are more widely dispersed through the community. The single-family dwellings are located on the perimeter of Faro. They are full-size houses with basements and nothing to distinguish them from houses seen further south.

Construction of the community was aided by the long hours of available light, the hiring of additional workmen, and the use of pre-built components which were trucked to the site for assembly. The exterior of the dwellings, school, and recreation center and nursing station are wood stained brown, gray, or charcoal green. Conventional construction techniques were employed except that foundations were dug considerably deeper than necessary and then backfilled with gravel to the required grade. Insulated utility lines were buried in gravel.

The better-drained land available for building sites existed on long ridges so that the dwellings occupying the ridges are arranged linearly. The ridges are from fifteen to twenty-five feet high. The cost of utilities discourages expansion along the ridges, and crowding is apparent.

The conventional materials and construction techniques employed on the original utilities and dwellings were found to be inadequate during the winter of 1969-1970. Sewer and water lines became frozen, particularly near the end of the runs where circulation was reduced. The dwellings were cold. Oil furnaces were not large enough and insulation was not sufficient to retain the heat. Kitchen sinks and water lines placed on outside walls became frozen.

The maisonettes received much criticism the first year. Like the other dwellings, they had inadequate insulation and furnaces. In addition, the second-floor overhang extended eighteen inches over the first floor. The overhang was uninsulated and was a major source of cold air. The maisonettes were designed with only one exit. There was fear that in the case of fire this exit might be obstructed since it was adjacent to the furnace, electrical connections, and garage. The lack of basements and the presence of many stairs was distressful to women, particularly those with small children. The company was unhappy with the maisonettes because the ground floor garages were being utilized as rooms and the large garage doors were a source of

Plate 11. Single-family dwellings on the upper bench. (July 1970).

Plate 12. Maisonettes in Faro. The object beneath the upstairs window is a rope ladder to be used in case of fire. (December 4, 1971).

heat loss even when closed. In addition, the exterior colors of brown, gray, and green were dull and monotonous. To brighten the buildings, doors and exterior trim were repainted with bright contrasting colors.

Other segments of the town consisted of a serviced mobile home park built on reclaimed swamp land and an industrial area near the mine access road. The industrial area provided space for contractors working at the mine or townsite and facilities for trucking companies. As housing became available and families moved to Faro, portions of the camp located on the lower bench were phased out.

New construction projects were proposed and completed in 1971. On the lower bench, seventy-three dwelling units were constructed. These were row houses with basements, large furnaces, better insulation and weatherstripping. In the town center, a large one-story building was constructed which houses a supermarket-department store, bank, and other commercial and service establishments. To complete the town center, a twenty-three room hotel, complete with dining and lounge facilities, was opened in the fall of 1971. This was the only commercial venture in Faro not assisted by the company. The basic elements of the town were completed.

With the erection of the row houses, more of the camp facilities for the single men were removed. Plans are to completely eliminate the camp and construct efficiency apartments suitable for single men.

Plate 13. Multiple-family dwellings constructed during the summer of 1971. (December 4, 1971).

As originally designed, the shopping facility would have featured an enclosed mall with the stores and offices accessible directly from the street or from the mall. The mall concept did not materialize primarily because of additional costs, but also because it might be attractive to vandals and loiterers. It is thought that the hotel and its facilities have had a substantial effect on the community. It does provide Faro residents with a place to go for relaxation and entertainment, and it is hoped it will reduce feelings of isolation.

The high costs of construction, land development, and providing the services have tended to discourage private entrepreneurs from establishing in Faro. The land for the hotel, purchased from the Territory, cost $50,692.32. Serviced lots in the industrial area cost from $22,000.00 to $37,000.00. Residential lots are available for approximately $4,000.00. In order to encourage private development, the company has found it advantageous to assist businesses until such time that they become self-sustaining. In addition, the company has found that it must subsidize the employees' rent. For a large apartment, a non-company person would pay $250.00 a month, while an Anvil employee would be charged only $55.00. As an inducement to remain with the company, the employees' rent is reduced 20 per cent annually.

On July 3, 1970, Faro became a village of the Yukon Territory. This incorporation gave residents power to govern their own affairs and legally distinguishes Faro from the typical company town.

However, since the company is holding more than 50 per cent of the taxable property in the village, it can block any village expenditure greater than $10,000.00 for a single item or $50,000.00 in aggregate. The structure exists for an open town; nevertheless Faro is still a single-enterprise community dominated by one company.

On December 1, 1971, Faro had a population of 1,230. Anvil housed 908 of these residents and the rest were living in the twenty-five trailers or in their own homes supplied by their employer: the Royal Canadian Mounted Police, Canadian National Telephones, Canadian Industries Limited, White Pass and Yukon Route, Husky Transport, Department of Education, or Department of Forestry. There were approximately 150 people in Faro working for someone other than Anvil. The largest non-basic employer was the hotel which employed thirty-nine people. Most of these were wives of Anvil employees who found part time work as housekeepers or waitresses. Housewives were also employed as clerks in the stores and as office workers.

The Company

On December 1, 1971, Anvil Mining Corporation Limited employed 355 people: 255 hourly personnel and 100 staff. Employees are hired either in Vancouver or Edmonton by an Anvil agent through the Chamber of Mines-Oil-Resources. There is no specific selection

process, but some preference is given to the applicant who has worked successfully in the North and whose wife is interested in the North. The personnel director felt that there was no particular advantage in working in the North over comparable work elsewhere in Canada.[19] The opportunity did exist, however, to work longer hours and to enjoy lower rent than elsewhere. It was hoped by the management that an employee could be retained for three to five years and, as the company and community matured, the length of employment would increase.

As expected, the turnover rates for the first two years at Anvil have been high. The average rate of turnover has been approximately 100 per cent. The higher rates occurred in the mill and townsite maintenance positions and mill operation. The tradesmen showed the lowest turnover rate. As the townsite has matured and more family dwelling units have become available, the turnover rate has steadily dropped (Figure 21). Management feels that the low monthly turnover rates in September, October, and November of 1971 are a direct result of the additional housing. The turnover rates of the hourly and staff personnel have both declined, but with the hourly-employed still turning over faster (Figure 22).

When turnover rates are compared between married and unmarried staff and married and unmarried hourly personnel, it is clear

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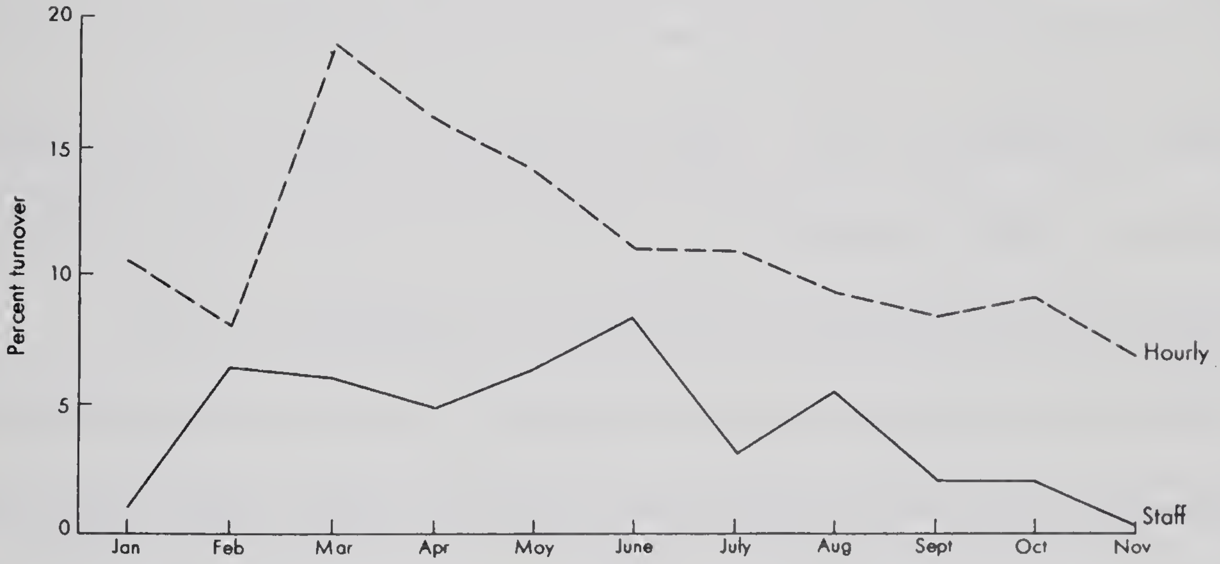
[19] Personal communication with W. Morris, Personnel Director, Anvil Mining Corporation Limited, Faro, Yukon Territory, December 2, 1971.

EMPLOYEE TURNOVER RATES
ANVIL MINING CORPORATION LIMITED
FARO, YUKON TERRITORY
Jan 1970 - Nov 1971

Source: *Company Records*

Figure 21.

EMPLOYEE TURNOVER RATES
ANVIL MINING CORPORATION LIMITED
FARO, YUKON TERRITORY
Jan - Nov 1971



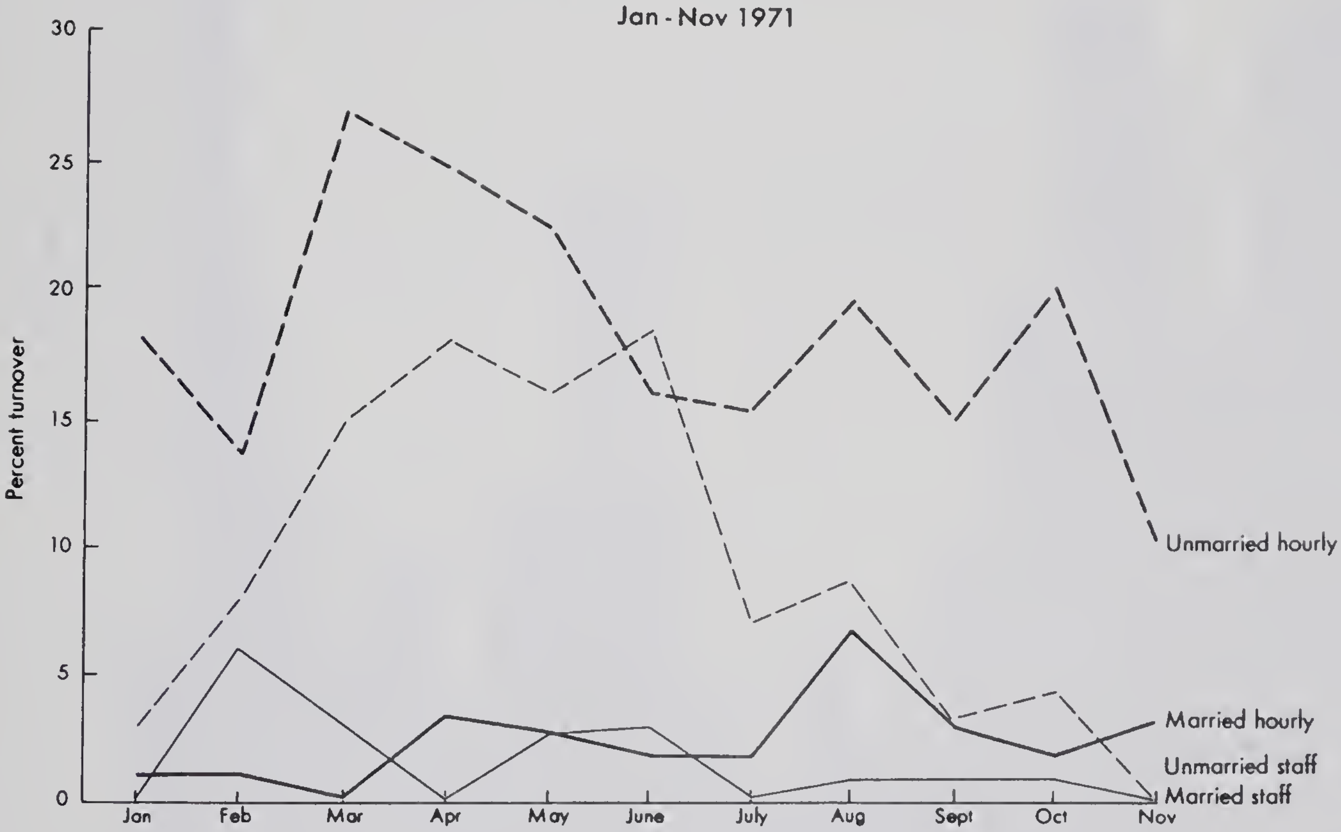
Source: Company Records

Figure 22.

that the rates declined in all groups (Figure 23). As the per cent of married personnel increases, it is also expected that the turnover rates among the unmarried will continue to drop as only the more conscientious single workers remain. While 55 per cent of the labor force has been employed during 1971, it is expected that the number of employees retained from month to month will increase (Figure 24). There has not been a discernible pattern to the turnover. However, with much of the open pit work similar to heavy construction, there is an indication that the heavy duty equipment operators leave in the spring when the construction season commences in the south. Those employees with school age children tend to leave Faro in the late summer before school begins.

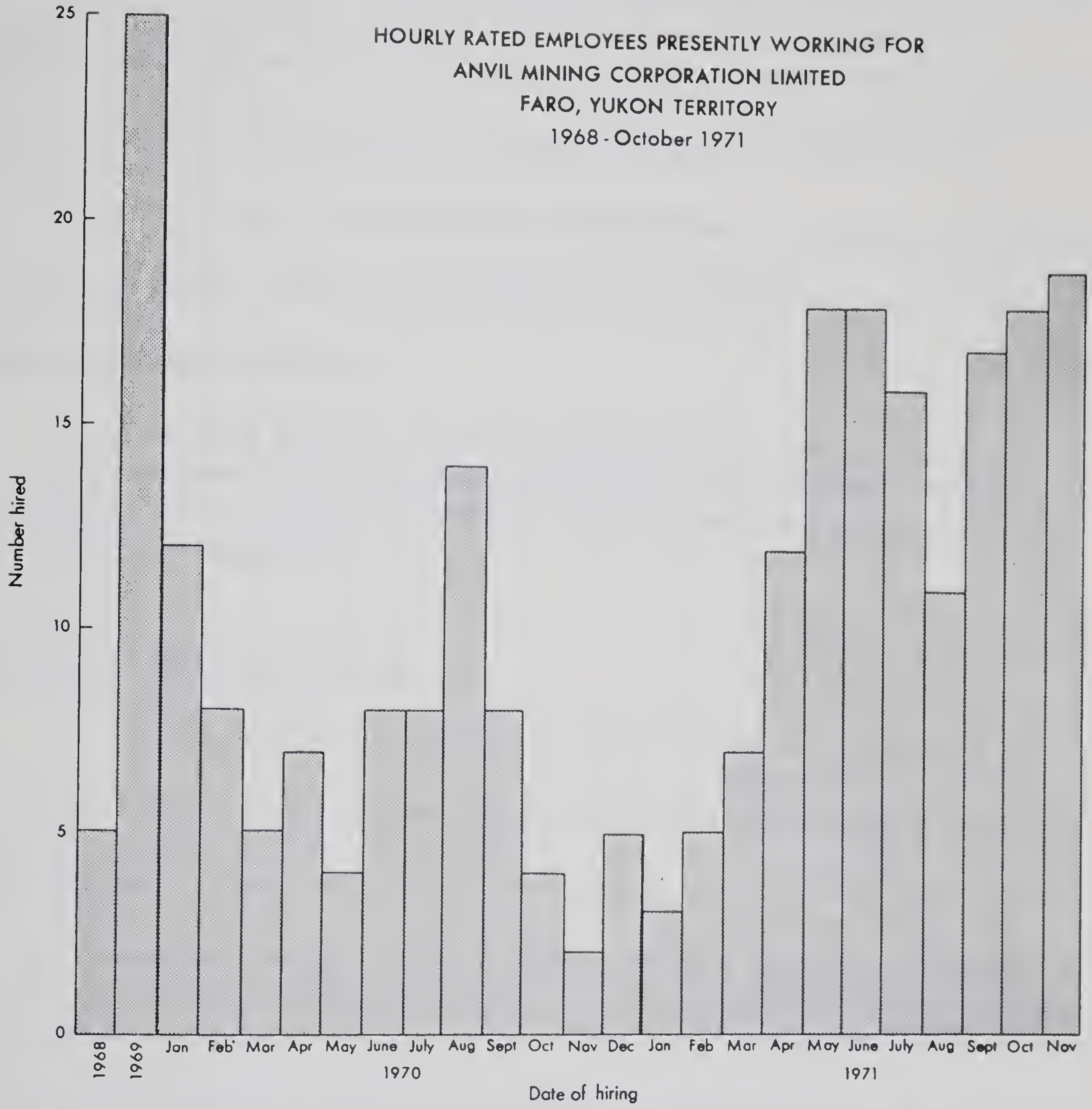
Anvil management feels that by hiring married employees and providing them with an attractive and open townsite, they will significantly reduce labor turnover and have a more stable operation. It is felt that residents are generally happier in a community that is developed along similar lines to that of a southern Canadian town. However, from a practical standpoint, to reduce development costs, it has been necessary to have more multiple dwellings than are found in a southern town. It was initially hoped that some arrangement could be worked out whereby the employee would buy his dwelling. However, the numerous multiple-family dwellings make such an arrangement unworkable and the high cost makes it unattractive. Therefore, the company subsidizes the housing. To provide other amenities and to try

EMPLOYEE TURNOVER RATES
ANVIL MINING CORPORATION LIMITED
FARO, YUKON TERRITORY
Jan - Nov 1971



Source: Company Records

Figure 23.



Source: *Anvil Mining Corporation Limited Seniority List*

Figure 24.

to maintain lower living costs, Anvil pays the transportation costs of food coming into Faro. Theoretically, Faro food prices should be equal to those at Whitehorse. The recreation center was constructed by the company and is leased to the village for $1.00 a year. The maintenance and the salary of a full-time recreation director is paid by Anvil.

Anvil has, of necessity, participated in almost every aspect of Faro's growth. However, the Senior Vice-President, R. E. Thurmond, has indicated that,

> as time goes on, Anvil's responsibility has become less and less, although Anvil does act in an advisory capacity in an attempt to mould good day-to-day practices and future planning.[20]

Faro and Its Regional Setting

The government and Anvil felt justified in developing Faro as an open town on the basis of the area's mineral potential. It is envisioned that a road will be extended northeast from the town linking with the Canol Road north of Ross River. Such a route would be an advantage to exploration parties since they could cross the Pelly River at Faro on the bridge, bypassing the ferry at Ross River. In addition, they could use the more attractive Faro townsite as a base. Thus,

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[20] Thurmond, op. cit., February 2, 1972.

> Faro will be a community to support any development on the North Canol road; even at the Hudson Bay Mining lead/zinc property development, and the AMAX tungsten development.[21]

Anvil management sees Faro becoming the regional center for the entire upper Pelly region. Such development would be at the expense of Ross River.

A small Indian community has grown two miles from Faro, where the access road bridges the Pelly River. The immediate area has long been used as a summer fishing camp. Since the erection of the town, the site has been populated by twenty-five to thirty people comprising several related families. They live in tents, crude shacks, or small construction shelters that were left behind when the bridge and town were built. The younger men are employed on a day-to-day basis or by contract to clear and supervise the burning of the dead timber which litters the area. All members of the Indian community are usually seen daily in Faro shopping, loitering in the hotel, or occupying their own corner of the tavern. The children and young adults have caused trouble in the recreation center and the entire group is generally unaccepted in Faro. Ironically, one of the residents of the Indian community is the man who led the way to the original mineral showing.

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[21] *Loc. cit.*

Resident Interviews

Interviews with families comprising fifty-eight households were conducted in early December 1971 (see Appendix A). The subjects indicated they came to the North and Faro for a variety of reasons. The most popular were: to see the North (40 per cent), to try a different life-style (36 per cent), to take an available job (32 per cent), for money (34 per cent), and because of the challenge offered by the frontier (26 per cent).[22] Fifty-three per cent of the people indicated that when they arrived in Faro they felt they would stay between one and four years. A few residents (four) said that they initially wanted to stay six months or less. However, most of them (55 per cent) now plan on living in Faro for at least five years.

The majority (70 per cent) of the people felt that Faro was different from any town where they had previously lived. Some (48 per cent) indicated that this was because everything was new and modern. Those living on the upper bench enjoyed the compactness of the town and the direct access to stores, recreation facilities, and the school. The lower bench residents also appreciated the newness of the town but complained that Faro was too spread out, forcing them to climb the escarpment to utilize community facilities. There was a feeling of banishment expressed by eight lower bench residents despite the

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[22] Unless otherwise indicated, all percentages are based on fifty-eight interviews which equal 100 per cent.

company's efforts of placing management-level personnel in all sectors of the community.

All Faro residents were favorably impressed with the available facilities, particularly the older residents who had seen Faro prior to the erection of the shopping center and hotel. The newcomers were equally impressed with the facilities, indicating that after travelling so far, they were amazed to find such a complete community.

Sixty-five per cent felt that the community seemed crowded and that the dwellings were too close together. Lack of privacy was a complaint common to 20 per cent of the group. A majority of these complaints came from the new row housing located on the lower bench.

Almost everyone (86 per cent) had some objections to their dwellings, but most (86 per cent) of the people were generally satisfied with their house or apartment. Seventy-three per cent of the residents of the lower bench indicated that they were either satisfied or very satisfied with their dwelling. On the upper bench the response dropped to 58 per cent. Most common among the objections were that the dwellings were cold (52 per cent) and drafty (45 per cent) and the interiors were poorly finished (57 per cent) and showed signs of poor workmanship (37 per cent). Residents of the maisonettes were unanimous in their unhappiness with only one exit and two flights of stairs to climb.

There were fewer complaints about the exterior of the

dwellings. Thirty per cent of the residents of the upper bench thought the buildings were unattractive, dull, and monotonous. Only 14 per cent of the lower bench residents had similar feelings. Frequently the maisonettes were described as looking like barns or warehouses.

Local and regional travel is popular with Faro residents. Area attractions, local lakes, and Carmacks were visited every two weeks. Sixty-five per cent said that they travel the 250 miles one-way to Whitehorse, via Carmacks, at least once a month. Usually such a trip was made by car in the summer, but often by bus which provides daily service in the winter.

Sixty-seven per cent of the total group said that they felt isolated at some time. There were a variety of expressions of isolation but no one comment or group of comments predominated.

Compared to where they lived previously, residents said that they missed participant sports (36 per cent), visiting with their friends and family (24 per cent), shopping (17 per cent), live entertainment (17 per cent), restaurants and lounges (15 per cent). The opportunity of immediate access to a variety of shopping facilities was missed by 25 per cent of the group.

Faro residents felt strongly about the need to improve roads (74 per cent), air transportation (76 per cent), radio and television (72 per cent), retail establishments (58 per cent), and medical facilities (46 per cent). During the time that the questionnaires were distributed,

the airfield was an issue in Faro. Since the existing airstrip was originally designed only for use by exploration parties, commercial aircraft were not allowed to land and private pilots are discouraged from using the field. The nearest airport is at Ross River over forty miles away. The townspeople and the company have been agitating for a more adequate strip to be built near Faro.

Radio reception at Faro, from a C.B.C. repeater station, has been unaccountably bad, and the Frontier Package of C.B.C. television is constantly under attack. These facilities were slow in coming to Faro, much to the frustration of residents and Anvil management who felt that television service was essential and that failure of the C.B.C. to provide such services "could seriously affect Anvil's ability to obtain and hold the kind of personnel to properly man its operation."[23]

Retail establishments in Faro were under verbal attack during the period that the questionnaire was distributed and on a previous visit in July 1970. The usual complaints were high prices and limited selection.

Faro residents keep informed of Whitehorse activities. Seventy per cent of the sample read the Whitehorse Star regularly, and a Vancouver paper is popular with 36 per cent.

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[23] R. E. Thurmond, Senior Vice-President, Anvil Mining Corporation Limited, letter to G. Davidson, Ottawa, Ontario, August 31, 1967.

Those interviewed felt that people come to Faro for money and job security and departed because they felt isolated. Their personal reasons for coming to Faro were most often a chance to see the North (36 per cent) or to earn and save money (29 per cent). Reasons for why they might leave were better educational facilities elsewhere (32 per cent) and isolation (36 per cent).

Ninety per cent felt they lived in the North and described it in a variety of ways. Mentioned by 52 per cent of the respondents were the physical aspects of the country: mountains, lakes, rivers, and clear air. Others described the North as a place for adventurers and the opportunity of participating in the opening of frontiers and enjoying a new life-style (48 per cent).

The concept of domed cities was rejected by 70 per cent, and the regional center concept was unappealing to 90 per cent of those interviewed.

Summary

Faro is a very new and young community. As the turnover rate has declined, there are already indications that a core of the inhabitants are assuming responsibility for their town. Complaints are commonly heard from the various parties that the other has failed to provide the proper services or meet its own obligations. Areas of responsibility among the Village, Anvil, and the Territorial Government are beginning

to emerge.

Site limitations and monetary constraints have restricted Faro's physical growth, and crowding is apparent. Though imaginative, there have been serious design faults in the original Faro dwellings. The residents of the newer, more conventional units are more satisfied with their housing than others. Some of the dissatisfaction with the original dwellings stems from their hurried construction.

All commercial activities are indirectly dependent on the existence of the mine. Direct company support of the enterprises apparently will be necessary for some time.

The growing Indian community at the Pelly River bridge is not generally recognized by the Faro residents. This area and its inhabitants may generate problems for Faro in the future.

Despite the openness of Faro, the aura of a company town exists no matter how hard Anvil tries to maintain its distance in community affairs. Perhaps a cartoon drawn by a student at Faro's Van-Gorder School best sums up the situation. It showed a company executive telling a group of employees that "You better believe Faro is an open town, or I'll fire you!"

CHAPTER VII

MINING AND SETTLEMENT

> He has gone there to better himself materially, but in going he has reduced the number of instruments of power at his command and his degree of control over them.
>
> Isaiah Bowman

Elsa, Clinton Creek, and Faro are small places. Their aggregate population is no more than twenty-five hundred people. Yet their small size does not minimize their effectiveness in advancing the frontier.

Physical Relationships

All the communities are located in the Yukon Plateau physiographic region. They occupy sites which afford residents long views across valleys to distant mountains. Elsa, on a steep north-facing slope, is six hundred feet above the floor of the McQuesten Valley which, at the community, is four miles wide. Clinton Creek is located on a fluvial terrace 250 feet above the Fortymile River. The local relief in the general area is comparatively subdued, being approximately

two thousand feet. However, the Ogilvie Mountains, some twenty-four miles to the northeast, have peaks five thousand feet above Clinton Creek. Faro, like Clinton Creek, is oriented towards the south, located on a fluvial terrace, and is 250 feet above a valley floor. In the case of Faro, the slope to the Pelly Valley floor is almost vertical in places, while in Clinton Creek the slope is gentle. Ten miles to the north of Faro is the Anvil Mountain Range which does not appear as massive as the Ogilvies, but is higher with peaks approaching seven thousand feet, forty-five hundred feet higher than the site of Faro.

The towns are influenced similarly by the various elements of climate. Their responses to temperature and wind differ slightly. Residents of Clinton Creek begin to restrict their outdoor activities at -50° F. Elsa and Faro residents indicate that the critical temperatures for them are -40° F. and -30° F., respectively. Clinton Creek is 120 miles north of Faro and only slightly poleward of Elsa. Comparable climatological records are limited. Clinton Creek may be slightly colder than the other communities. It does not seem reasonable that Clinton Creek would experience so much colder weather that residents would become accustomed to more severe temperatures. The Clinton Creek site appears sheltered by the local topography and vegetation while the others, particularly Elsa, seem more exposed to wind. Perhaps in Clinton Creek there is more reason to go outdoors regardless of the weather. The site is pleasant, the area around the

community is scenic and historically interesting, and there are a variety of winter activities within the community.

Wind is the second element of climate which prompted a different response. During the winter, the winds in the Yukon are generally light and variable, except in those valley areas where there is a funnelling action. The communities are so sited that they should not be greatly influenced by katabatic winds. Such was the reported case for Clinton Creek and Elsa. It was generally agreed that wind seldom blew and was usually not an inhibiting factor when present. However, at Faro over 80 per cent of the respondents indicated that it was windy and that wind restricted their activities. There is no topographic or meteorological explanation that is immediately apparent. However, the forest fire of 1969 may have had some influence. The fire destroyed almost all the trees in the vicinity of Faro, completely burning the foliage and leaving only the bare branches and trunks. Near the community the dead trees have been cut and the land cleared. Farther from the village the landscape is littered with bare trees, many still standing and the rest fallen. However, removal of the vegetation does not generate wind, though it does permit its effect to be felt more readily -- and at low temperatures little air movement is needed to drop the sensible temperature appreciably. Data are not yet available, but the residents do feel that it is windy.

The results of the fire at Faro have had a broader influence

than the destruction of the vegetation. It was feared that the charred landscape might have an undesirable impact on local residents. Apparently a morale problem did exist in Faro when the snow melted in the spring of 1970 and exposed the forest fire debris that was hidden when most of the residents arrived.[1] The company recognized the problem and instituted a community beautification program in order to make the immediate landscape attractive.

The annual variation of sunlight is similar in all three communities. However, because of Elsa's orientation on a north-facing slope, the sun does disappear from view for several weeks. Its date and hour of disappearance (approximately November 13) and reappearance (approximately February 14) are well known to the older residents. Many of the older locals can point out those landmarks high on the crest of Galena Hill that are associated with the departure of the sun in fall and its return in spring.

Most of the residents of the communities fail to realize that the period of coldest weather does not usually coincide with the period of shortest daylight hours. Immediately prior to the winter solstice the residents would comment on the approaching months of dark and cold which followed the Christmas and New Year holidays. At the time of the coldest weather, usually late January, the sun has

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[1] The Raven, Faro, Yukon Territory, October 14, 1971.

already reached its nadir and the hours of daylight are lengthening in the Northern hemisphere. Nevertheless, the confinement caused by the cold and the passing of the holiday season may foster a feeling of prolonged depression on the part of some northern residents.

With only a few exceptions, the gross physical environments of the three mining communities are similar. Generally subdued mountains and impressive river valleys dominate the landscape. The sub-arctic climate is reflected in the prevailing elements of the Boreal forest which, however, becomes more sparse at Clinton Creek than at the other two centers.

Human Relationships

Mining in the Yukon today bears little resemblance to the initial efforts in the gold fields. It was considered that the northern territories were destined to remain producers of precious metals only -- commodities of high unit value. Such is the case with United Keno Hill Mines Limited and its predecessor companies that produced lead and zinc but relied on silver for their main revenue.

The recent northern mining developments, characterized by highgrading, have centered on less glamorous ores, lead and zinc, copper and asbestos. The infrastructure that is associated with the new operations is more elaborate. To minimize transportation costs the ore is concentrated at the mine site. A sophisticated crusher and

mill are erected and employ a relatively skilled labor force. The mining operation demands the services of competent blasters, drillers, and heavy duty equipment operators. The pick, shovel, and gold pan of seventy years ago have been replaced by huge power shovels and trucks costing as much as $150,000.00 each. Entire communities have been planned, designed, and built within three years to house employees and their families.

Assured markets have been secured for the ores before mining operations began. The location of the new mines in the northwestern corner of North America has tended to isolate the minerals from the industrial centers of Canada and the United States, but the Japanese market on the Pacific rim is attractive to Yukon mineral producers. On a still larger scene, world resources for asbestos, lead, and zinc are expected to be depleted within twenty years.[2] This impending scarcity has helped to foster the current operations and stimulate exploration in the Yukon.

The transportation system is tied directly to mining as it moves ores to the markets and supplies the remote mines, mills, and towns. The limited transportation system of the Yukon has been closely

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[2] Resource Engineering of Canada Limited for W. D. Carr and Associates Limited. The Yukon Economy -- Its Potential for Growth and Continuity, Vol. V: Reference Study on Minerals. Report prepared for the Dept. of Indian Affairs and Northern Development and the Gov't. of the Yukon Territory (Ottawa: Queen's Printer, 1969), pp. 7-9.

affiliated with the mining industry from its earliest years. The limited nature of the road system is one of the most significant characteristics of the settlement frontier throughout the Canadian Northwest.[3]

In the past, the transportation routes were developed in response to existing mining operations. The White Pass and Yukon Route Railway and the boat service on the rivers were established to serve mining towns. In the early 1950s roads were extended linking the mines in the Mayo area to Whitehorse which had been a key center in the construction of the Alaska Highway during World War II. The government feels that United Keno Hill Mines Limited "has benefited greatly" from the eventual construction of bridges over the Yukon, Pelly, and Stewart Rivers.[4] Later, Dawson was tied into the territorial highway network.

United Keno Hill Mines Limited was responsible for the actual construction of the road linking Elsa with Mayo, and the company shared the expenses of the Mayo-Whitehorse road. In this case, private industrial initiative stimulated road construction and opened the region for additional development. On the other hand, the roads for the Clinton Creek and Faro mines were built to stimulate mining

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[3] W. C. Wonders, "Transportation and the Settlement Frontier in the Mackenzie Valley Area," North, Vol. XIII (1) (January, February 1966), p. 34-38.

[4] Personal communication with Jean Fournier, Executive Assistant to the Minister of Indian Affairs and Northern Development, Ottawa, Ontario, March 23, 1972.

after private industry discovered the mineral potential of the site. The government expenditures on roads amounted to $1,664,606.00 in the case of Anvil, and $1,118,334.00 at Clinton Creek. These monies were expended to provide access to the mine and mill sites prior to production. From an economic standpoint, such assistance is a gamble since it is not known if the operation will become viable.

Such government participation beginning in the early 1960s is seen by some as a change in policy regarding the North.[5] Previously, government acted to assist an industry only after it was well established. The reason suggested for this type of federal subvention is a belief that the "potential mineral riches of the area are very substantial and efforts should be made to encourage their exploration and exploitation."[6] Such a policy clearly extends more permanent lines of settlement into the country.

The government's assistance and incentive program is broad and draws from many agencies. A vast amount of technical assistance is available from the Geological Survey and National Research Council. Funds are made available for tote trails, initial access, and permanent roads. Assistance in constructing exploration airports is

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[5] K. J. Rea, The Political Economy of the Canadian North (Toronto: University of Toronto Press, 1968), p. 356.

[6] T. N. Brewis, Regional Economic Policies in Canada (Toronto: MacMillan Company of Canada Limited, 1969), p. 232.

also available. If required, assistance is available for marine transport, aids to navigation, ice-breaker support, ice reconnaissance, harbor construction, and ship building.

Townsite development assistance, as in the case of Faro and, to a lesser extent, Clinton Creek, is negotiated between the Territorial Government and the company concerned. Any commitments by the Territorial Government require prior approval by the Department of Indian Affairs and Northern Development. The Federal Government has overriding jurisdiction in the Territories (Yukon and N.W.T.) and is sponsoring a gradual transition from Federal to Territorial Government responsibility and administration. A main area in which direct control has been retained by the Federal Government is the field of natural resources. If the community were developed as an open town, as in the case of Faro, the government may provide the funds for roads and municipal services but charge the costs to the user. In addition, the Territorial Government would likely construct and operate a school and share with the company and the Department of National Health and Welfare the construction of a nursing station. Various housing schemes are also available through Central Housing and Mortgage Corporation with either the Territorial Government or the company acting as agent.

The Federal and Territorial Governments are assisting in northern development and colonization by providing basic amenities.

Notable examples are the operation of the Northern Canada Power Commission in providing electrification, the Canadian National Telecommunications and Canadian Broadcasting Corporation in their provision of communication facilities. The Federal and Territorial Governments hope to increase their expenditures for amenities in the North through Crown corporations or by assisting private enterprise.[7] A basic motive for this participation is the government's desire to encourage stable and profitable development by the company.

However, such assistance programs, though clearly related to settlement (road construction, townsite development, and housing assistance), should not be interpreted as continuing the earlier government aims (federal and provincial) of widespread immigration and settlement throughout the subarctic. It has been stated "that the Federal Government has no intentions of pursuing a policy of colonization in the northern territories."[8] It is expected that settlement will occur

> partly as a result of the achievement of one of several of Government's objectives in the North, namely, to encourage viable economic development within regions of the northern territories.[9]

On the basis of the statements by the Minister of Indian

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[7] Fournier, op. cit.

[8] Personal communication with J. Chretien, Minister, Department of Indian Affairs and Northern Development, Whitehorse, Yukon Territory, November 12, 1971.

[9] Fournier, op. cit.

Affairs and Northern Development and his Executive Assistant, it would seem that the policy which was evolved during the past decade will likely continue. In the cases of Clinton Creek and Faro, the government became significantly involved in providing financial assistance and services only after the corporate interests furnished evidence that a mining operation would probably succeed. Where a region appears potentially attractive for more than one mine or eventually a smelter and transportation center, the government seems willing to provide for the establishment of a larger center. In Faro the government, through Anvil, has created an open town and expended considerable sums providing for public utilities and other municipal services. Over $9,000,000.00 was expended by the government just to provide Anvil and Faro with electric power.[10] The government estimates that this expenditure will be amortized in thirty years through the power costs to Anvil and Faro residents. This example indicates that government has confidence in the economic potential in the Faro area. Where mineralization and the potential for other economic endeavors is not great, the government is willing to provide only limited service. In Clinton Creek the onus is on the company to provide the majority of services. It is clear then that, from the Federal Government's view, northern colonization will occur only after evidence indicates that a profitable mine will develop. Such a view is not necessarily shared by other

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[10] Loc. cit.

levels of government.

It has been suggested that such an economic motive may have resulted from the fact that social assistance in the North is expensive and "the Canadian Government would like to see the region pay more of its own way."[11] There have been unconfirmed hints that an economic policy may be readjusted and that the first priority in northern policy formulation will be social needs followed by the preservation of the natural environment and, finally, development of renewable and non-renewable resources.[12]

Regardless of the institution responsible for their formation (whether private, individual, corporate, or government), components of settlement based on mining are features of the Yukon landscape.

The Communities

The three communities exhibit characteristics which reflect their age, the philosophy guiding their development and approach to northern living. Elsa, referred to by the residents as "the camp," represents an old style mining town that, by necessity, was situated near the portal and mill. Its growth has been determined by the site. Amenities have been provided by the company when the demand became

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[11] David Judd, "Canada's Northern Policy: Retrospect and Prospect," The Polar Record, Vol. 14, No. 92 (1969), p. 602.

[12] Globe and Mail, Toronto, Ontario, December 30, 1971.

apparent and money became available. Much of the housing is inadequate and unattractive. The newer housing is more attractive and indicates an attempt to try to complement the natural surroundings. Elsa was founded as a company town out of necessity. Paternalism, often associated with management-employee relationships in a company town, appears strong in Elsa. Company policy does not indicate a softening of the paternalistic approach to company town management.

Clinton Creek and Faro represent a new approach to resource towns. Clinton Creek is essentially a transplanted southern-style community. It appears to have been sited and planned with sensitivity toward the inhabitants and the environment. For lack of reasonable alternatives, Clinton Creek is a company town. However, sincere efforts are being made to introduce flexibility into the operation of the town and to encourage residents to participate in the operation of the community. Decisions regarding town operation still lie with the general superintendent whose primary responsibility is to operate a mine. While supervision of a town and a mining operation are not incompatible, the inherent difficulties are obvious. The residents are unhappy about the situation.

It was hoped that Faro would be the "ultimate" northern-style town. However, difficulties have arisen because of its fragmented site and the original dwellings which were poorly designed and constructed. Commercial and governmental facilities have slowly been

added to the community. Permanency of settlement is discouraged since the mechanism does not exist whereby the resident can purchase his home. The open nature of the village is perhaps best expressed by the variety of stores in the shopping center. In addition to the supermarket-department store, there is a clothing store, gift shop and travel agency, barbershop and beauty parlor, sporting goods and automobile accessory store, bank, liquor store, and professional and service establishments. The food store carries a wide variety of the more essential and common food stuffs. It is natural that only the products in demand are stocked. The company store at Clinton Creek also stocks similar essential items but, in addition, offers many specialty food items. The non-profit company store can better afford to offer the low-volume items. It has been indicated that company management feels that having these items available, even if not often purchased, will reduce feelings of isolation and banishment.[13] The larger commercial market at Faro cannot justify offering unusual food items.

The majority of people interviewed in the three communities have many common characteristics. They are generally a young group. Seventy per cent of them are between the ages of twenty and thirty-nine (Table 9). They are also people with children. There were 175 children

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[13] Personal communication with I. Campbell, Retail Store Supervisor, Clinton Creek, Yukon Territory, November 26, 1971.

TABLE 9

AGES OF RESPONDENTS

Age	Elsa No.	Elsa %	Clinton Creek No.	Clinton Creek %	Faro No.	Faro %	Total No.	Total %
0-14	0	0.0	0	0.0	0	0.0	0	0.0
15-19	0	0.0	0	0.0	3	5.2	3	2.7
20-24	0	0.0	2	5.7	9	15.5	11	10.0
25-29	4	23.5	6	17.1	6	10.3	16	14.5
30-34	4	23.5	13	37.1	18	31.0	35	32.7
35-39	0	0.0	3	8.6	8	13.8	11	10.0
40-44	3	17.6	2	5.7	3	5.2	8	7.3
45-49	3	17.6	4	11.7	3	5.2	10	9.2
50-54	1	5.9	0	0.0	3	5.2	4	3.6
55-59	0	0.0	2	5.7	3	5.2	5	4.6
60 and older	2	11.8	3	8.6	0	0.0	5	4.6
No response	0	0.0	0	0.0	2	3.4	2	1.9
	17	100.0	35	100.0	58	100.0	110	100.0

Source: Field Survey

below age thirteen in the households contacted. There were ninety pre-school children in the group. Most of the adults had completed grade twelve, but they hoped that their children would be able to have some additional schooling, usually university (Tables 10 and 11). The inhabitants of Elsa deviated most from the average. They were older and had fewer children at home. A smaller proportion had been educated to grade twelve and they expected their children would learn a trade or office skill rather than attend university. Conversely, the Elsa residents indicated more often that they had another skill or trade that they found useful in the community. Usually this involved small appliance repair, radio and television servicing, carpentry, or automobile repair.

The differences in education achievement between the residents of Elsa, Clinton Creek and Faro may be indicative of the trend toward capital-intensive mining. Better educated workers are required to operate the equipment in the mine and mill. In addition, the residents of Faro and Clinton Creek are younger and have more recently moved from southern Canada where greater educational opportunities exist.

More than half the total respondents were hourly-wage personnel. But regardless of their employment status, 80 per cent earned between $7,500.00 and $15,000.00, with 50 per cent of the total group earning about $12,500.00.

TABLE 10

LAST GRADE LEVEL COMPLETED IN SCHOOL

	Elsa		Clinton Creek		Faro		Total	
Grade Level	No.	%	No.	%	No.	%	No.	%
0-6	0	0.0	1	2.9	0	0.0	1	.9
7-9	3	17.6	4	11.4	5	8.6	12	10.9
10-12	10	58.8	24	68.6	36	62.1	70	63.6
2 year post-high school	1	5.9	3	8.6	4	6.9	8	7.3
3-4 year post-high school	0	0.0	2	5.7	2	3.4	4	3.6
Post-graduate	2	11.8	0	0.0	3	5.2	5	4.5
No response	1	5.9	1	2.9	8	13.8	10	9.1
	17	100.0	35	100.0	58	100.0	110	100.0

Source: Field Survey

TABLE 11

PERCENTAGE OF RESPONDENTS WHO EXPECT THEIR CHILDREN TO ATTEND UNIVERSITY OR TRADE SCHOOL

	Elsa	Clinton Creek	Faro	Total
University	22.9%	41.2%	48.3%	39.1%
Trade school	25.7%	5.9%	19.0%	19.0%

Source: Field Survey

The majority (80 per cent) had lived in their community for eighteen months or less and had probably moved from a small town in Western Canada (60 per cent). Sixty-two per cent of the respondents had lived previously in a mining community. Sixty per cent had moved twice in the last five years. Upon arrival in the North, they planned to stay two years; however they now plan on staying for three to five years. They came north to make money, but hope to settle eventually on the coastal or interior valleys of southern British Columbia.

The residents have problems with their dwellings, which may be cold (42 per cent), but they are satisfied (66 per cent). Much of their satisfaction stems from the low rent or payments required. Money that they do not spend for housing, they want to save. The residents were also satisfied with their community surroundings. Just as with housing, there were many small complaints about the community (70 per cent were unhappy with some aspect of the community). A major irritant that was mentioned was the lack of privacy. This was mentioned by only 20 per cent of the sample, but they thought the problem serious enough to consider moving.

The things missed most of the time were the opportunity to enjoy some recreation and relaxation at a restaurant or lounge, spectator and participant sports, and a variety of stores at which to shop.

The most important aspect of their community life was not the available amenities or activities, but the close friendships that had

developed. This was especially true where the length of residence had been long. However there was a small minority that was emphatic about their dislike and distrust of the local populace (only 5 of 110 interviews). The majority of the total sample seemed to enjoy the openness of the people and felt that their friends were "real people" and did not hide behind a facade as did the people in larger cities.

Most of the residents expressed satisfaction with the quality of life in their communities. They were quick to note that their stay was only temporary and they could tolerate many inconveniences for a limited time. However, some components of their existence needed immediate improvement (Table 12). Emphasized by 72 per cent was the need to improve television programming. It was felt that the four hours of broadcast should be extended and that the variety of shows should be expanded. Programs that should be added were sports, especially hockey, and full-length movies.

The Canadian Broadcasting Corporation has provided taped television programs for the North since 1968. Programs are recorded in southern Canada and sent north where they are passed on from center to center. Whitehorse, Dawson, Elsa, Clinton Creek, Watson Lake, and, since the summer of 1971, Faro, are the Yukon communities which receive the service. A low power transmitter extends a signal only to the local area. This transmission equipment is located in the community and can be operated without technical training.

TABLE 12

COMMUNITY FACILITIES WHICH THE RESIDENTS FELT NEEDED IMPROVEMENT

	Elsa (n=17)		Clinton Creek (n=35)		Faro (n=58)		Total (n=110)	
	n	%	n	%	n	%	n	%
Radio and television programming	11	64.7	26	74.3	42	72.4	79	71.8
Local and regional roads	12	70.6	23	65.7	43	74.1	78	70.9
Air transport	6	35.3	16	45.7	44	75.9	66	60.0
Local retail facilities	10	58.8	14	40.0	34	58.6	58	52.7
Local educational facilities	5	29.4	15	42.9	26	44.8	46	41.8
Local medical facilities	8	47.1	8	22.9	27	46.6	43	39.1
Live entertainment	9	52.9	13	37.1	10	17.2	32	29.1
Recreation facilities	8	47.1	18	51.4	6	10.3	32	29.1
Housing	10	58.8	10	28.6	12	20.7	32	29.1
Mail service	6	35.3	18	51.4	8	13.8	32	29.1
Religious services	1	5.9	13	31.7	2	3.4	16	14.5
Library	0	0.0	5	14.3	6	10.3	11	10.0
	17	100.0	35	100.0	58	100.0	110	100.0

Source: Field Survey

Previously televised programs are viewed one week later in Whitehorse and at a progressively later date farther north. For example, Clinton Creek residents can view "Christmas Specials" in mid-January. Such a delay precludes the use of television for communicating news and other current events. However, the entertainment appeal is not lost.

In all three towns, residents said aspects of road transportation needed improvement (71 per cent). The major complaints were that the roads were dusty in summer, narrow, and that there were too few service facilities. Sixty per cent of the residents felt that air transportation needed expansion. They felt that service should be more frequent and that the arrival and departure times at Whitehorse should connect with Vancouver and Edmonton flights. This linkage is made on southbound flights, but northbound passengers must spend the night in Whitehorse. Mentioned by fewer respondents (60 per cent) was the need to improve the variety, quality, and price of food items in the store. These complaints were most numerous in Faro and Elsa.

Twenty-five per cent of the sample indicated that they would like to continue to live in the North until they retire. Most of this group had responses similar to those who were planning on only a short stay in the North. It can be expected that most of those people will probably return south. The group that will most likely remain in the North are those whose responses were more like those who had lived in the North

[illegible]

[illegible]

[illegible]

[illegible]

for a considerable period, usually more than seven years.

There are several characteristics common to the Northeners. They did not come north only for money (33 per cent). They also emphasized seeking security for themselves or their family (30 per cent), because the job was appealing (29 per cent) or there was a feeling of freedom associated with their activities or style of life (30 per cent). Those who indicated that they came exclusively for money (37 per cent), to see the North (33 per cent), or because of the prospects of challenge and adventure (21 per cent) did not intend to remain beyond five years. The Northerners interviewed have some financial interest in property, a commercial enterprise, a cabin in the bush, or a nearby mining claim which they work at occasionally.

Those who are permanent residents are knowledgeable and participate in local and territorial political activities and service organizations.[14] They subscribe to the Whitehorse Star and usually a national newspaper or news magazine. They take an active interest in the physical environment, local history, and in establishing rapport with the indigenous population. Studies of the flora and fauna, local geology and other natural phenomena are popular pastimes with the group. Hunting and fishing are popular with both husbands and wives. These people

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[14] Permanent residents are those who indicated that they would remain in the community until they retired, and longer if possible. They had usually lived in the same community, or one very similar, for more than five years (this would include 24 per cent of the respondents).

travel outside less often than the majority of the sample, usually once every eighteen months to three years. On such trips they often see friends and relatives and make some substantial purchases, usually a new car or pick-up truck. As a result of their longer residence in the North, and probably because of a greater effort, these people have friends and acquaintances in virtually every part of the Yukon, including Old Crow. Friends visit each other frequently, often arriving without notice and usually staying for a day or two.

Six of these permanent residents referred to themselves as "bushed." This term has usually been applied to an individual who has developed unusual, sometimes unacceptable behavior characteristics.[15] In the context of the interviewees, "bushed" referred to a shift in their orientation from the "outside" to the North. This change was indicated by acceptance and satisfaction with their life-style in the Yukon.

It must be remembered that those interviewed were native-born North Americans or individuals who had lived in Canada for many years. Their opinions regarding life in a northern mining community will differ from those of recent immigrants who make up a large share of the labor force (see Figures 12 and 13).

Elsa, Clinton Creek, and Faro vary in location, size, age, amenities, layout, building design, and company policy. Comparisons

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[15] A. P. Abbott and J. P. Kehoe, "Mental Health Practice in the Yukon," Canada's Mental Health, Vol. 20, No. 1, (1972), pp. 4-10.

are difficult, but certain characteristics considered favorable or unfavorable by the residents can be detected. It seems incongruous that the community which represents the old style of a northern mining town should have apparently better adjusted residents. It is clear, however, that more of the Elsa residents are satisfied and more settled than are residents of Faro and Clinton Creek. Quite obviously, Elsa is much older and the community has matured. As noted previously, the company is still faced with a phenomenal turnover rate among its single employees. There were some indications that a few of those who had settled in at Elsa were essentially trapped. They had worked for the company for many years and were older and thus lacked easy access to other jobs. In addition, they have become knowledgeable and proficient in aspects of the operations at Elsa and the other company properties. They have developed an expertise that may not be readily transferable to another operation. There are indications that these employees feel secure in their jobs and, for this reason, may be apprehensive about seeking other employment. Wives may also feel secure and may not be anxious to move and become re-established. Children of these residents have generally found life on the outside more appealing.

Clinton Creek and Faro are still new communities with youthful characteristics. The population has begun to stabilize in Clinton Creek and there is a growing core of stability in Faro. Both of these communities have permanent northern residents and a number

that appear to be potentially permanent. There are elements of both communities that are attractive to the residents. The positive factors of Clinton Creek are the site and its situation overlooking the Fortymile River and the distant Ogilvie Mountains. The people appreciate the efforts on the part of the company to retain the trees and to fit the town into the environment. The single-family dwellings, though said to be crowded together, are popular. A negative factor of Clinton Creek is its existence as a company town. This has fostered dissension with some members of the community toward the company and other residents. Such feelings are to be expected. The implementation of the Clinton Creek Advisory Committee should ease such tensions, but early reaction of a few residents was that the committee would not be representative and would only serve to ratify company policy. Again, such a reaction seems typical.

During early December 1971, Faro was described as still being "in turmoil."[16] There is no question that the open town concept is attractive to the residents, though the domination of the company in community affairs does, at times, appear stifling. The major complaint is directed toward the company in its role as landlord. For example, the residents were uncomfortable when a company vice-president came to their house to investigate a complaint of a plugged

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[16] Personal communication with H. Jomini, Vice-President, Anvil Mining Corporation Limited, Faro, Yukon Territory, December 1, 1971.

drain or an ill-fitting storm door.

The opportunity does exist for individual economic initiative. This ideally frees the resident from feeling tied to the company store and affords him the opportunity of contact with people other than company employees. The Faro Hotel, with no formal company affiliation, is viewed as the one place in the community where an individual feels independent. The high cost of land and the limited market precludes rapid commercial development. The important fact is that the opportunity exists. Some have taken advantage of this opportunity to open their homes as boutiques, small appliance repair shops, or catalog sales outlets. Before an individual can initiate such a venture, he must be granted permission from the company so that rent and insurance rates can be adjusted appropriately.

The more conventional type of housing, single-family apartment and duplex, has been much better received than the maisonette style. It is clear that the maisonette, though imaginative, is not suitably designed or constructed for summer or winter temperature extremes. The single-family dwelling is the most popular style of accommodation in Faro. All the residents of the maisonettes had complaints about the dwelling, whereas only 15 per cent of the residents of single-family dwellings complained.

Future Community Growth

In these communities the policy of the company and often the ideas of an individual policy maker are manifested. For this reason company officials were contacted regarding the mining communities.

There was agreement among management that residents are happier living in a town that is designed and laid out similar to a southern community. They feel that such a community should not be a "pastel imitation" of a southern town but should have some integration with the natural environment and the site. The increased costs inherent in northern construction are a restraint to northern town development. Because of site limitations, the expense of utility lines, and the economics gained through multiple-family housing, the policy makers do not feel they have been able to reach all their goals of good community design.

There is no question among management that the greater the percentage of married personnel, the lower the turnover rate. However, they felt that the economics of hiring married workers must be measured against the additional costs of housing, schools, and amenities. An additional cost results from lower productivity among the married employees as obligations to the family demand more time.[17]

The role that amenities have in attracting a stable work

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[17] Personal communication with D. R. De Laporte, President, United Keno Hill Mines Limited, Toronto, Ontario, February 15, 1972.

force is not clear. The President of Cassiar, J. D. Christian, feels that while amenities are very important, the nature of the person's life within the community is also significant.[18] He believes that in the North there is the opportunity for self-improvement without the constraints and frustrations that he feels exist in the larger southern communities. Such a person needs courage to break away and, for this kind of person, the North can provide a real outlet. A similar feeling was expressed by D. R. De Laporte of United Keno Hill Mines Limited who feels that those people who adapt to northern living have great personal resources and enjoy their existence regardless of the extent of amenities.[19] He adds that the "true miner is an adventurous type who moves regularly regardless of accommodation." This appears to be true in underground and open pit mining. The open pit miner often seeks employment in the construction industry, whereas the underground miner moves from mine to mine.

Christian, De Laporte, and R. E. Thurmond of Anvil, agree that individual communities will have to be maintained for the smaller isolated mining operations. Regional centers will only develop where large mineral deposits can support sustained mining and the functional base can be broadened, particularly through tourism and government.

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[18] Personal communication with J. D. Christian, Toronto, Ontario January 28, 1972.

[19] De Laporte, op. cit.

Such regional centers would have to be integrated with a reliable transportation system.

Possible Transportation Growth and Settlement

As has been the case in the past, transportation and settlement will be closely related in the future. Recently there has been interest in establishing additional rail service to the Yukon Territory. At present the only railway in the Territory is the narrow gauge White Pass and Yukon Route linking Whitehorse with tidewater at Skagway. The railway terminating at Whitehorse has been one of the major factors for the city's continued existence.[20]

It has been proposed that the British Columbia-owned Pacific Great Eastern Railway be extended into the Yukon Territory.[21] The suggested extension would link Dease Lake in north central British Columbia to Whitehorse.[22] Another possible extension would be from Fort Nelson, in northeastern British Columbia, up the Liard valley eventually reaching the highly mineralized Tintina Trench. The rationale for any proposed extension is to open more of the Territory and northern British Columbia for development and to provide the mineral industry with an all-Canadian route to tidewater.

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[20] P. Koroscil, "The Changing Landscape of the Yukon Territory and the Settlement of Whitehorse." Unpublished Ph.D. thesis, University of Michigan, (1970), p. 187.

[21] Whitehorse Star, August 30, 1971.

[22] Ibid., January 31, 1972.

White Pass and Yukon Route management feel that a more practical step in the evolution of Yukon transportation would be to extend their line to Carmacks. From Carmacks a branch would be extended east to Ross River and, depending upon resource development, another extension into the northern Yukon. The Whitehorse-Carmacks route has been surveyed. The President of White Pass claims that their route would be preferable since the Whitehorse-Skagway link is the shortest distance to tidewater. Thus concentrates would travel a shorter distance via the more expensive rail transport.[23] Skagway is closer to the market in Japan than the Port of Vancouver.

It does not seem likely that a railway would be extended to Whitehorse. Though there are copper deposits nearby, the raison d'etre of Whitehorse is transportation and government. The mineral concentrates which flow through Whitehorse are produced in more remote places: Elsa, Clinton Creek, Faro, Cassiar, B.C., and Tungsten in the Mackenzie District of the Northwest Territories. It would seem reasonable that a railway be extended towards the producing centers. Such an extension could have an appreciable impact on mining and settlement in the Territory. The mines and communities would benefit from lower transportation costs due to the shorter distance to the railhead. Thus, lower grade ores that were previously wasted could be profitably

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[23] A. P. Friesen, President, White Pass and Yukon Route, address to the Whitehorse Chamber of Commerce, October 5, 1971.

mined and transported. Known deposits of lower grade ores could be brought into production. The railway could be extended in the Territory thus increasing the radius for exploration. It is not inconceivable that ore bodies would be located in the process of constructing a railway. It has happened in the past.[24]

One can speculate on how such an extension would affect settlement. An immediate benefit could be lower costs for consumer goods. It is likely that the communities could be larger and have a longer life expectancy since the greater quantity of lower grade ores would extend the life of a mine. Larger mining centers might, in turn, become regional centers with more than limited amenities. The railhead would become a transportation center having an adverse affect on Whitehorse. The establishment of a new railhead community and the amenities that would accompany it could provide residents of the outlying mining settlements with a new and more convenient center for shopping, recreation, and entertainment, thus reducing regional isolation. The larger mineral base could attract a smelter or other industry with close affiliation to mineral and metal processing. A larger economic and population base would require extensive government services and attract private investment, thus broadening the economic base.

Such speculation can readily be applied to the Yukon. It is

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[24] Morris Zaslow, The Opening of the Canadian North 1870-1914 (Toronto: McClelland and Stewart, 1971), p. 181.

not unreasonable to expect that, some day, there will be railway development farther into the Territory. An extension of either the White Pass and Yukon Route Railway to Carmacks, or the Pacific Great Eastern Railway down the Pelly River Valley to Faro and Carmacks, seems plausible. The railhead at Carmacks would then be 109 miles north of Whitehorse, closer to the producing mines at Elsa, Clinton Creek, and Faro and penetrating the potentially rich Tintina Trench.

The extension of rail transportation in the Yukon would be of such magnitude as to require the participation of railway, mining interests, and government. It would be the responsibility of mining interests to justify the developmental potential of a region and secure markets before a railway could be built with the government providing the necessary infrastructure capital.

CHAPTER VIII

CONCLUSION

> Communities must be not just places where people can find work, but also where they will be happy to live.
>
> Jean Marchand

The form and process of settlement have been investigated as they apply to three mining communities in the Yukon Territory: Elsa, Clinton Creek, and Faro. In addition, the study has focused on the residents, their reasons for moving to the community, and their feelings about it.

Over the years man has come to the Yukon for various reasons. In recent history he has trapped, sought gold, constructed a military highway, and, finally, mined base metals. To accommodate the miners who have recently come on the scene, entire new communities have been constructed rapidly. Pre-existing settlements were not suitable for modern mining communities. They are situated within valleys on the banks of rivers and the low-lying land limits development. More significantly, they are too far from the ore bodies

and reliable long-distance commuting is not yet practical. To facilitate transportation, roads have been upgraded and constructed to tie the mines and communities into the Territorial highway network.

In the Yukon Territory, mining has been an effective agent for colonization. Communities have been constructed and transportation routes and communication lines extended to them. However, individual miners have seldom settled permanently. Most move to the Yukon for money and eventually leave whether they "make their stake" or not. Their tenure in the North might be longer if they lived in a better physical and social environment.

Development on a proper site is essential. The site should be south-facing and overlook a valley for thermal and aesthetic reasons. It should be well-drained, treed, and with enough relief to give it character but not such as to provide obstacles. It should be large enough to avoid crowding and allow room for expansion. It should be so arranged that the functional elements of the community can be segregated yet be equally accessible to all.

The buildings should be designed to harmonize with the site. The dwellings should be planned for active young families, with basements and one story. They should be situated so that scenic views are available as well as impersonal views of the activity in the community center. While economies encourage multiple-family dwellings, they should be so arranged and constructed that privacy is assured. For

the most part, construction problems relating to permafrost, cold, and condensation have been solved. However, the noises, smells, and sights that are sensed in high-density housing can eventually be distressing to those who feel confined because of the cold and darkness.

Appropriate amenities are essential, but they alone do not foster satisfaction. The opportunity must exist for political, social, and economic fulfilment within the context of a small community.

It is recognized that most people move north with some preconceptions. They arrive in the North with the view that their stay is temporary. Such an attitude does not encourage the planning of settlements for any degree of permanence. People move north to participate in the dynamic economy. While in the North, they hope to capture some of the traditional appeal and romance for which the land is known. Unfortunately, much of the northern flavor is lost as communities are erected without recognition of the region's historic and geographic attributes. A community which incorporates into its design aspects of local history and geography could offer greater satisfaction to the residents. These regional elements need not be elaborate. They could include a recognition and retention of the natural environment, a display of local artifacts, photographs, and maps taken during the days of the gold rush. Though some residents are unhappy with the simulated log-type structures, there is agreement that the building does fit the environment. Those residents who find satisfaction in the North are sensitive

to the region in which they live.

The northern mining community still retains some distinctive features despite many transplanted southern elements. In Elsa and Clinton Creek the bunkhouses and cafeteria complex are distinctive. Faro has a hotel which, because of its size, sets the community apart from a southern community of similar size. A feature common to the three communities is the hockey and curling rivalry that exists among them. While an intangible, there is an air of excitement associated with the mining industry. References are made in conversation about the quality of the ore, the market situation, or of a promising strike in another area. The distinctiveness of Elsa is heightened by the presence of the mine and mill within the community.

Mines are impermanent structures and their associated communities are more transitory than most other types of settlements. Some mining towns are fortuitously located so that they may, over the years, serve a succession of mines or retain a governmental, commercial, transportation, or tourism function. The existence of other mining communities is limited to the life of the mine. Opportunities for broadening the economic base of remote mining communities are limited. Government activity is an artificial foundation on which to base a community. Tourism, often mentioned as an economic alternative, is highly seasonal and the Yukon is far from the population centers.

Certain elements affecting northern mines and their

associated settlements cannot be changed and will continue to lend character to the region. The physical elements of climate and great annual variation in daylight will not change. People find, however, that these elements only limit their outdoor activities rather than eliminating them. It is likely that the major markets for Yukon minerals will remain foreign. Thus, the minerals will still be shipped long distances. It should be kept in mind that the market demand for minerals can change drastically in a very short time affecting the mines almost immediately. It must be remembered that the amortization periods are different and sometimes lengthy for the buildings and equipment associated with mining and milling, utilities, and buildings in the townsite. For this reason, and particularly as townsites become more elaborate and expensive, markets should be secured that will remain viable for a considerable period of time. As a result of mining, revolutionary changes in transportation have already occurred in the Yukon and continual improvement will result in increased efficiency and economies.

The location of the ore bodies is fixed, but improvements in transportation can influence man's settling in relation to the deposits. Improved transportation will encourage mining of the more abundant lower grade ores rather than only the high grade deposits which are often found in remote locations. Settlements then would not have to be tied to one isolated ore pocket. Eventually transportation will evolve whereby the miners can be transported economically to more distant

mine sites daily, thus maintaining desirable family ties. Techniques of Yukon mining have changed drastically in the past decade and the industry will likely continue to become more capital-intensive. It can be visualized that the extractive and milling process will become more highly mechanized. Eventually the mining of ores could become as automated as oil exploitation, thus reducing the need for extensive settlements.

The pattern for future settlement seems established. When growth based on minerals appears great, the government will assume the burden of townsite development and operation and allow the mining company to put their total resources toward their primary function. Economies of scale achieved through the establishment of regional centers would probably encourage other basic and non-basic enterprises to develop in the area. The general location of regional centers will be dependent on the analysis of the physical and human elements appropriate to the new settlements. The trend toward fewer, but larger, centers seems clear. The overall pattern of settlement would become less dense. A limiting or phasing out of existing smaller centers in favor of larger communities would require careful planning. Such planning would restrict development to the already identified favorable areas. Such economic and social planning is presently counter to the frontier spirit which exists in the Yukon. Yukoners view themselves as living in a region where opportunity is not limited by governmental restriction.

For the immediate future, additional permanent centers will be established in the Yukon, some affiliated with mines. It must be conceded that the centers will, in the main, be inhabited by a succession of transients. These people nurture the hopes of financially improving themselves so that, upon their return to the south, life will be more comfortable. The residents appreciate attempts to adapt a community to the region. Some develop a sense of attachment for the region and become true residents despite an occasional trip outside or a move within the North. Such is the case of Clinton Creek with the maintenance of Forty Mile and the preservation of trees. In the future it can be expected that more and more people will find satisfaction in the North as communities become more attractive, as improvements are made in transportation, education, and health services, and as leisure time outlets become more available.

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APPENDIX A

THE INTERVIEWS AND QUESTIONNAIRE

Interviews took place in the communities during November and December 1971. It was hoped that a 20 per cent sample could be obtained. This was exceeded in each community.

At Elsa the sample was stratified on the basis of housing. Three strata were identified: those living in older homes near the mill, those living in older and new homes in the main residential area, and those living in Flat Creek. Random number tables were used (in all cases) to select the householder in each stratum. Seventeen out of an available sixty householders were interviewed. The number of interviews in each stratum were: two (seven[1]) from the older homes near the mill, eight (thirty-five) from the main residential area, and seven (eighteen) from Flat Creek. Thirteen of the respondents were male.

When the questionnaires were delivered to the participants, the project and the questionnaires were explained in detail and an

---

[1] The number in brackets refers to the number of householders available during the period of survey.

appointment was made so that the questionnaire could be collected and, if necessary, questions could be clarified. The first contact with the participants lasted thirty to forty minutes. The length of the second contact varied more, but averaged thirty minutes. Only one person refused to participate. For convenience, the residents in the house to the left of the unco-operative individual was contacted. Many subjects were suspicious and considerable explanation was often necessary to satisfy the participants that the interviewer was not a "government man" or a "company man." A similar explanation was necessary in Clinton Creek.

The stratified random sample technique was a valuable aid in the rapid distribution of the questionnaire. However, in Elsa it was soon discovered that many residents who had not received a questionnaire felt discriminated against. A considerable amount of time was spent explaining why they were not included. The offended individuals usually became interested in the study and a lengthy, often informative, conversation ensued. Other informal interviews were conducted at various meeting places in Elsa (the store, cafeteria, curling club, Lions Club, Post Office) and at Millerville and Keno Hill.

The sample at Clinton Creek was also stratified on the basis of housing. Two strata were identified: mobile homes and single-family dwellings. Sixty-six householders were available for the interviews and thirty-five were randomly selected and completed with no

refusals. Twenty-five (forty-five) interviews were conducted at single-family dwellings and eight (twenty-one) at mobile homes. To avoid discrimination, all available and interested residents were personally informed about the survey and provided with questionnaires. The explanation and distribution of the questionnaires was aided by meeting with several groups of housewives during coffee hours. If the pre-selected householder was not provided with a questionnaire at a group meeting, a personal visit was made. The ladies were requested to have their husbands fill out the questionnaire, but to discuss any questions of mutual interest. In thirty-one of the cases, the questionnaire was completed by the male member of the household. The visit necessary to collect the questionnaire lasted, on the average, twenty minutes. When the data was gathered, only the randomly selected questions were utilized. Additional interviews were held informally at the Malamute Saloon, curling club, store, the main office, medical clinic, ladies' staff house, and at a road maintenance camp located immediately across the Fortymile River near Clinton Creek.

Faro, being much larger (population 1,230), offered some anonymity to the researcher. The respondents appeared to be more open and candid in their conversation and written responses. A stratified random sample was again utilized. The village was divided into the upper and lower bench and by dwelling type: single-family, maisonette, townhouse, and apartment. Fifty-eight interviews were

conducted from 230 available householders. Thirty-six interviews were conducted on the upper bench (146). The number of householders and their type of residence were: fourteen (fifty-two) maisonettes, eight (twenty-seven) townhouses, five (twenty-two) single-family dwellings, and nine (forty-five) apartments. On the lower bench, the number and type of residence where interviews were conducted were: seven (twenty) maisonettes, eight (fifty-two) townhouses, and seven (twelve) single-family dwellings. Prior to the distribution of the questionnaires, a short article appeared in the local newspaper explaining the project and method of selecting those to be interviewed. At the time of distribution, additional explanation was offered. The residents were informed where the researcher could be contacted if questions arose, and that a local grade nine youngster would be calling on them to collect the sealed questionnaire. Eighty-six per cent of the respondents were male. Informal interviews were conducted in the village center, school, recreation center, and in homes. Additional informal interviews were held at the local Indian camp and at Ross River.

The formal questionnaire was a useful tool for collecting specific information. The distribution and retrieval of the questionnaire provided the researcher with the opportunity to meet the residents in their homes and engage them in conversation related to the study. From such informal and relaxed sessions, often lasting hours,

impressions were formed and additional information gleaned which proved valuable. The respondents in the company towns were generally cautious and suspicious regarding the survey. This was particularly true among the older residents. Nevertheless, the interest and hospitality extended by all those with whom the researcher came in contact was genuine.

YUKON RESIDENTIAL
SURVEY

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The purpose of this study is to learn how people feel about living in this community. The information will be strictly confidential. The results of the survey may guide the planning of future resource towns in the Yukon.

INTRODUCTION

1. How long have you lived in this town?

   a. 3 months
   b. 3-6 months
   c. 6-12 months
   d. 12-18 months
   e. 2 years
   f. ________

2. Where did you live before moving to this town?

   Place ______________ How long? ________ Size __________
   ______________ ________ __________
   ______________ ________ __________
   ______________ ________ __________
   ______________ ________ __________

3. Why did you come to this particular community?

   a. It was where the job was.
   b. Friends or relatives said it was a good place.
   c. No reason.
   d. Other ____

4. How long did you intend to stay in this community when you first moved here?

   a. less than one month
   b. 1-4 months
   c. 4-12 months
   d. 1-2 years
   e. 2-4 years
   f. 5-10 years
   g. over 10 years
   h. no definite time __________

5. How much longer do you now plan on staying here?

   a. less than 6 months
   b. 6 months - 1 year
   c. 1-2 years
   d. 2-5 years
   e. 5-10 years
   f. more than 10 years
   g. rest of working life
   h. retire here __________

6. When life can be more comfortable in the south, why did you come to the Yukon?

   ____

   ____

HOUSING

7. Do you think that the buildings in your block are

a. spaced too close together
b. spaced just about right
c. spaced too far apart
____

8. Compared to other towns, do you think that the design of dwellings in this town are

a. much better than most
b. better than most
c. about average
d. worse than most
e. much worse than most
____

Could you explain your answer? ____________________
____

9. Are there any specific problems with the dwelling you're living in? (cold areas, wind, window placement, small rooms, color...)
____
____
____

10. What do you like most about your home?

a. size
b. price
c. convenient location
d. good internal design
e. attractive lot
f. type of house (row, detached, apt.)
g. attractive outside design
h. ____________

11. If anything, what don't you like about your home? ____________

a. poor design
b. too small
c. type
d. parts need repair
e. age
f. lot too small
g. site
h. lack of privacy
i. nothing
j. other ____________

12. Which one of these would you use to describe your feelings about your home?

a. very unsatisfied
b. unsatisfied
c. neutral
d. satisfied
e. very satisfied

13. Is there any one house or other dwelling unit in this town which stands out in your mind for its beauty or design?

____

14. Is there any one building in this town which stands out in your mind for its beauty or design?

____

15. On the scale provided, how would you rate the location of your home in this town?

A	B	C	D	E	
Worst		Average		Best	________

Explain. ____

____

COMMUNITY

16. Is this town as you expected it would be before you came here?

____

Explain. ____

____

17. Does this community have as many modern conveniences and facilities as you thought it would?

____

Explain. ____

18. How do you feel about the distance that your house is from

	Too close	Just right	Too far
school	________	________	________
shopping	________	________	________
recreation facilities	________	________	________

19. Do you feel that the layout of this community and its buildings is different from other communities where you have lived?

____

Explain. ____

____

20. Do you think that the company's operations are

a. too close to town
b. just the right distance from town
c. too far from town ____________

21. Do you have a car? ____________

22. Do you use it more in summer or winter? ____________

23. Where do you travel in the Yukon? ____________

24. How often do you go there? ____________

25. Do you travel outside the Yukon? ____________

26. Where do you go outside the Yukon? ____________

27. How often do you go outside the Yukon? ____________

28. In your community, do you encounter any parking problems?

____

29. Are plug-in facilities available? ____________

30. If you had a friend or relative coming to visit you for the first time, what sight (building, area, view) would you first want to show him? ____

31. What local things would you <u>not</u> be likely to show him?

____

32. What do you like most about this town? ____________

a. layout and design
b. houses
c. cleanliness
d. stores
e. people
f. organizations
g. size
h. location
i. other ____________________

33. What do you dislike about this town? ____________________

____

34. Have you been to Elsa or Faro or Clinton Creek? ____________

35. What did you like about the town? ______________________

____

____

CLIMATE

36. How does your tempo of life and involvement in various activities vary from summer to winter?

____

____

37. How does this tempo and involvement compare to your life in the other towns you have lived?

____

____

38. Do you and your family have special winter clothing that you did not have or wear when you lived in southern Canada? __________

What? ______________________________________

39. Do you have a thermometer? __________

40. Do you pay much attention to the weather reports on radio or TV? __________

41. Do you keep any kind of weather records? __________

42. How cold does it have to get before you no longer engage in outdoor activity? __________

43. How cold does it have to get before you limit your children's outdoor activity? __________

44. Is the wind a factor in determining the extent of your activities outdoors? __________

45. Do you feel that there is adequate street and other outdoor lighting during the winter? __________

46. Much of the concern about living in the North centers on the winter conditions. Are there problems also to be faced during the summer? ______________________________

____

47. Is your house comfortable in the summer? (too warm, too stuffy)

48. Do the long hours of sunlight bother you or your family during the summertime? Explain.

49. On cool days is there a place outside your house that is sheltered from the wind and warmed by the sun and is comfortable?
Where?

50. You have perhaps heard or read about various proposals for building communities in the North which would be covered with domes or roofed with air-supported membranes. How would you like to live in such a community?

ISOLATION

51. We hear a lot about people feeling isolated in the North. Do you feel isolated here?

a. never
b. always
c. only in winter
d. only in summer
e. only during break-up and freeze-up
f. occasionally
g. undecided

52. What does isolation mean to you?

53. What do you miss that you used to <u>do</u> before you came here?

54. Do you miss anything that you used to <u>have</u> before you came here?

55. Compared to the activities where you previously lived, do you

	More	Same	Less
a. watch television			
b. listen to the radio			

	More	Same	Less
c. visit with neighbors			
d. visit the beer hall			
e. read			
f. work			
g. spend more time with family			
h. participate in sports			
i. participate in community activity			
j. go to church			
k. hunting, fishing			
l. cross-country skiing			
m. snowmobiling			

56. Would you please check the things that need improvement here.

____a. roads
____b. air transportation
____c. entertainment
____d. recreation facilities
____e. educational facilities
____f. housing & accommodation
____g. medical facilities
____h. retail facilities
____i. radio and television
____j. mail
____k. religious services
____l. library
____m. other________________

57. What newspapers do you subscribe to or read regularly?

____

____

LENGTH OF STAY

58. If you were free to live anywhere in Canada, where would you live?

a. in the mountains
b. near the ocean
c. on the prairies
d. large city suburb
e. fairly large city
f. small villages
g. northern parts of Canada
h. southern parts of Canada
i. other________________

59. Would you be more specific?________________________________

60. Why do you think people decide to live for several years in a community such as this one?

____

____

61. Why do you think people decide to leave a community such as this one? ____________________

____

62. If you intend to remain here, what is your main reason?

____

63. If you do not intend to remain here, what is your main reason?

____

64. It has been proposed that future resource towns be large regional centers with many facilities. The worker would then commute to his job spending a week or two at the mine site and then several days at home in the regional center.

What do you think of this idea? ____________________

____

____

____

65. Would you like to live permanently in the North? ____________

If yes, where? ____________ Why? ____________

____

If not, why not? ____________________

____

66. Do you think more people will move north? ____________

CONCLUSION

67. Do you

a. own your home
b. rent your home
c. live with relatives
d. other ____________ ____________

68. What was the last grade you completed in school? ____________

69. What are the ages of the children presently living with you?

____

70. Which of the following would you prefer to have your son or sons do?

a. do the same type of work as you or your husband
b. learn a trade
c. complete high school and then go into some kind of business
d. attend university
e. attend graduate school
f. enter a profession
g. other____________________________ __________

71. Which of the following would you prefer to have your daughter or daughters do?

a. be a housewife
b. do clerical or office work
c. attend university
d. attend graduate school
e. enter a profession
f. other________________

72. In addition to your regular job, do you have another skill or trade that you have found useful in this community? __________

If yes, please specify__________________________________

73. Please give the letter of your age group. __________

a. 15-19
b. 20-24
c. 25-29
d. 30-34
e. 35-39
f. 40-44
g. 45-49
h. 50-54
i. 55-59
j. over 60

74. 1.) male 2.) female __________

75. 1.) staff 2.) hourly rated __________

76. Most of work 1.) outisde 2.) inside __________

77. Income level

a. less than $5000
b. $5000-7500
c. $7500-10,000
d. $10,000-12,500
e. $12,500-15,000
f. $15,000-17,500
g. $17,500-20,000
h. more than $20,000

____

78. Lately we have heard much about the North in the news. Do you feel that you live in the North? ______________

79. How would you characterize the North?

____

____

____

____

____

80. The boundary between southern and northern Canada has been described in many, often arbitrary terms. On the map would you please draw a line indicating where you think the North begins.


ICELAND
GREENLAND
DAVIS STRAIT
BAFFIN BAY
ATLANTIC OCEAN
NEWFOUNDLAND
QUEBEC
Hudson Strait
HUDSON BAY
James Bay
ONTARIO
MANITOBA
SASKATCHEWAN
ALBERTA
BRITISH COLUMBIA
YUKON TERRITORY
ALASKA
NORTHWEST TERRITORIES
DISTRICT OF FRANKLIN
DISTRICT OF KEEWATIN
DISTRICT OF MACKENZIE
BAFFIN ISLAND
VICTORIA ISLAND
QUEEN ELIZABETH ISLANDS
ARCTIC OCEAN
PACIFIC OCEAN
UNITED STATES OF AMERICA
U.S.S.R.
Bering Strait
Great Bear Lake
Great Slave Lake
Mackenzie
Yukon River
WINNIPEG
REGINA
EDMONTON
CALGARY
VANCOUVER
VICTORIA
OTTAWA
MONTREAL
QUEBEC
TORONTO
NEW YORK

APPENDIX B

CLIMATIC SUMMARIES

Selected Stations -- Mean Daily Temperature, Mean Daily Maximum Temperature, Mean Daily Minimum Temperature, Minimum Temperature (in degrees Fahrenheit)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	
Dawson[1] - 64° 04' N., 139° 26' W. Elevation 1,062 ft. a.s.l.														
Daily Temp.	-17.6	-11.1	5.7	29.4	46.6	56.9	59.8	54.5	43.5	26.4	2.5	-12.9	23.6	a
Daily Max.	-10.7	- 3.0	18.2	42.2	59.0	70.1	72.2	65.8	52.9	32.7	8.3	- 6.6	33.4	a
Daily Min.	-24.5	-19.1	- 6.8	16.6	34.1	43.7	47.4	43.2	34.1	20.0	- 3.3	-19.1	13.9	a
Max. Temp.	47.0	48.0	52.0	69.0	86.0	95.0	95.0	88.0	79.0	68.0	52.0	55.0	95.0	g
Min. Temp.	-68.0	-73.0	-54.0	-41.0	4.0	25.0	29.0	17.0	8.0	-23.0	-50.0	-66.0	-73.0	g
Mayo[2] - 63° 36' N., 135° 53' W. Elevation 1,625 ft. a.s.l.														
Daily Temp.	-13.3	- 5.5	11.3	31.0	46.3	55.7	58.4	53.4	43.4	28.4	5.2	-10.0	25.4	a
Daily Max.	- 3.6	6.0	24.9	42.7	58.3	68.9	71.4	65.8	54.0	36.2	13.2	- 1.1	36.4	a
Daily Min.	-23.0	-16.9	- 2.3	19.3	34.2	42.4	45.3	40.9	32.8	20.5	- 2.8	-18.8	14.3	a
Max. Temp.	50.0	53.0	54.0	68.0	89.0	95.0	92.0	86.0	80.0	65.0	50.0	52.0	95.0	f
Min. Temp.	-73.0	-80.0	-56.0	-42.0	- 7.0	26.0	27.0	16.0	4.0	-34.0	-59.0	-72.0	-80.0	f
Whitehorse[3] - 60° 43' N., 135° 04' W. Elevation 2,289 ft. a.s.l.														
Daily Temp.	- 0.6	6.7	18.3	31.7	45.5	54.6	57.5	54.3	46.3	33.3	17.2	4.9	30.8	c
Daily Max.	6.9	15.2	28.3	41.1	56.5	66.2	68.3	64.5	55.0	39.9	23.1	11.8	39.7	c
Daily Min.	- 8.1	- 1.9	8.3	22.3	34.5	42.9	46.6	44.1	37.5	26.6	11.2	- 2.1	21.8	c
Max. Temp.	47.0	50.0	51.0	69.0	86.0	89.0	91.0	86.0	80.0	66.0	51.0	47.0	91.0	e
Min. Temp.	-62.0	-59.0	-37.0	-15.0	11.0	29.0	32.0	24.0	14.0	-12.0	-41.0	-54.0	-62.0	e

APPENDIX B -- Continued

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	
Vancouver International Airport[4] - 49° 11' N., 123° 10' W. Elevation 16 ft. a.s.l.														
Daily Temp.	37.2	39.4	43.2	48.3	55.0	60.4	63.8	63.6	57.8	50.3	43.1	39.6	50.4	b
Daily Max.	41.8	45.5	49.5	55.7	62.9	67.7	72.3	71.6	65.2	56.5	48.6	44.4	56.4	b
Daily Min.	32.5	33.2	36.9	40.8	47.1	53.0	55.3	55.4	50.4	44.0	37.6	34.8	43.7	b
Max. Temp.	57.0	59.0	67.0	76.0	84.0	83.0	89.0	92.0	84.0	73.0	62.0	58.0	92.0	e
Min. Temp.	0.0	3.0	15.0	26.0	33.0	40.0	44.0	43.0	33.0	21.0	10.0	2.0	0.0	e
Edmonton Industrial Airport[5] - 55° 56' N., 113° 31' W. Elevation 2,219 ft. a.s.l.														
Daily Temp.	6.6	11.2	22.1	34.5	52.1	57.8	63.1	60.0	51.5	41.2	24.5	13.3	36.9	d
Daily Max.	15.2	20.3	31.0	50.0	63.6	68.5	74.4	71.3	62.6	51.6	32.2	21.0	46.8	d
Daily Min.	- 2.0	2.0	13.2	28.9	40.5	47.0	51.7	48.6	40.4	30.7	16.8	5.5	26.9	d
Max. Temp.	57.0	62.0	72.0	88.0	94.0	99.0	98.0	96.0	88.0	83.0	74.0	61.0	99.0	h
Min. Temp.	-57.0	-57.0	-40.0	-15.0	-10.0	25.0	29.0	26.0	11.0	-15.0	-44.0	-55.0	-57.0	h
Toronto - 43° 40' N., 79° 24' W. Elevation 379 ft. a.s.l.														
Daily Temp.[6]	25.0	25.1	32.3	44.6	55.7	66.2	71.5	70.0	61.9	51.1	39.7	28.7	47.7	a
Daily Max.[7]	31.4	31.6	38.8	52.4	64.9	75.6	81.2	79.2	70.7	58.9	45.6	34.5	55.4	a
Daily Min.[8]	18.6	18.5	25.7	36.8	46.5	56.8	61.8	60.8	53.1	43.3	33.7	22.9	39.9	a
Max. Temp.[9]	60.0	57.0	80.0	90.0	94.0	98.0	105.	102.	100.	86.0	75.0	61.0	105.	i
Min. Temp.[10]	-27.0	-25.0	-16.0	5.0	25.0	28.0	39.0	40.0	28.0	16.0	- 5.0	-22.0	-27.0	i

a Normals were computed directly from a period of record of 25 to 30 years within the period 1931-1960. In most cases the record existed over the full 30 years.

b The data for these normals were from the full 10-year period 1951-1960 adjusted to the standard normal period 1931-1960.

APPENDIX B -- Continued

c These averages are based on the period of record of 10 to 24 years during the period 1931-1960. No adjustment factor has been used.

d The observing station was moved from the city to an airport during the 1930s. The resulting normals are based on the full 30-year period from 1931-1960.

e 20 to 29 years.

f 40 to 49 years.

g 60 to 69 years.

h 80 to 89 years.

i 90 or more years.

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[1] Canada, Department of Transport, Meteorological Branch, *Temperature and Precipitation Tables for the North -- Y.T. and N.W.T.* (Toronto, 1967), p, 1.

[2] *Ibid.*, p. 2.

[3] *Ibid.*, p. 3.

[4] ________. *Temperature and Precipitation Tables for British Columbia*. (Toronto. 1967), p. 41.

[5] ________. *Temperature and Precipitation Tables for Prairie Provinces*. (Toronto, 1967, p. 5.

[6] ________. *Climatic Normals*, Vol. 1 (Toronto, 1968), p. 9.

[7] *Ibid.*, p. 22.

[8] *Ibid.*, p. 35.

[9] *Ibid.*, p. 48.

[10] *Ibid.*, p. 61.

APPENDIX B -- Continued

Selected Stations -- Mean Total Precipitation (inches)

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	
Dawson[1]	0.81	0.55	0.52	0.31	0.97	1.28	1.98	1.94	1.22	1.09	1.05	0.95	12.67	a
Mayo[2]	0.74	0.48	0.40	0.25	0.81	1.25	1.66	1.77	1.10	1.00	0.91	0.79	11.16	a
Whitehorse[3]	0.70	0.56	0.59	0.43	0.50	1.06	1.36	1.44	0.98	0.73	0.91	0.79	10.05	b
Vancouver[4]	5.52	4.74	3.76	2.30	1.92	1.84	1.04	1.37	2.13	4.62	5.44	6.44	41.12	b
Edmonton[5]	0.95	0.77	0.83	1.10	1.83	3.15	3.34	2.55	1.35	0.90	0.88	0.99	18.64	c
Toronto[6]	2.62	2.32	2.65	2.61	2.76	2.49	2.90	2.39	2.56	2.37	2.48	2.41	30.56	a

a Normals were computed directly from a period of record of 25 to 30 years within the period 1931-1960. In most cases the record existed over the full 30 years.

b These averages are based on the period of record of 10 to 24 years during the period 1931-1960. No adjustment factor has been used.

c The observing station was moved from the city to an airport during the 1930s. The resulting normals are based on the full 30-year period from 1931-1960.

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[1] Canada, Department of Transport, Meteorological Branch, Temperature and Precipitation Tables for the North -- Y.T. and N.W.T. (Toronto, 1967), p. 1.

[2] Ibid., p. 2.

[3] Ibid., p. 3.

[4] Canada, Department of Transport, Meteorological Branch, *Temperature and Precipitation Tables for British Columbia* (Toronto, 1967), p. 41.

[5] __________. *Temperature and Precipitation Tables for Prairie Provinces*. (Toronto, 1967), p. 5.

[6] __________. *Climatic Normals*, Vol. 2 (Toronto, 1968), p. 44.

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